

City of Tiffin, Ohio Storm Water Management Program

January 2020





CITY OF TIFFIN
STORM WATER MANAGEMENT PROGRAM
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A: Ohio EPA NPDES Small MS4 General Permit Annual Reporting Form



CITY OF TIFFIN
STORM WATER MANAGEMENT PROGRAM
LIST OF ACRONYMS

BMP	Best Management Practice
Chapter 909	Refers to the City of Tiffin Codified Ordinance Chapter 909
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CWA	Clean Water Act
EPA	Environmental Protection Agency
GCP	General Construction Permit
GIS	Geographical Information System
HSTS	Household Sewage Treatment System
IDDE	Illicit Discharge Detection and Elimination
I&M	Inspection & Maintenance
LTCP	Long Term Control Plan
MCM	Minimum Control Measure
MEP	Maximum Extent Practicable
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Intent
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
OAC	Ohio Administrative Code
O&M	Operation and Maintenance
OSS SWD	Ottawa, Sandusky Seneca County Solid Waste District
PMP	Pollutant Minimization Plan
PPGH	Pollution Prevention and Good Housekeeping



SCGHD	Seneca County General Health District
SOP	Standard Operating Procedure
SWMP	Stormwater Management Program
SWO	Stop Work Order
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TOC	Table of Contents
TSS	Total Suspended Solids
USEPA	United States Environmental Protection Agency
WPCC	Water Pollution Control Center
WWTP	Wastewater Treatment Plant

MCM#1 – Public Education and Outreach



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MCM#1 – PUBLIC EDUCATION AND OUTREACH
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MCM#1 – PUBLIC EDUCATION AND OUTREACH

Section 1 – Introduction



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MCM#1 – PUBLIC EDUCATION AND OUTREACH INTRODUCTION

The objective of this City's Public Education and Outreach program is to distribute educational materials and provide educational information through the City's webpage to inform the community about the steps they can take to reduce storm water pollution and the impacts of storm water discharges. The City also informs individuals and groups on how to become involved in the storm water program through public outreach activities. Target audiences were selected on the basis of applicability, achievability, and effectiveness. Target pollutants as established by the Upper portion of the Sandusky River Watershed TMDL and associated target audiences were identified and categorized by **Table 1-1**.

Table 1-1: Target Pollutants/Audiences

Pollutant	Source	Target Audience(s)
Sediment	Disturbed ground, Erosion	Development
Nutrients	Sanitary waste (Pet and human)	Residential, Pet owners
Chemicals	Pharmaceuticals	Residential, Commercial/Industrial
	Grease	
	Mercury	
Bacteria	Sanitary waste (Pet and human)	Residential

This program includes documentation of existing educational brochures and pamphlets for distribution, web-based resources, and organizing public presentations to reach target audiences. The intent is to increase public awareness about storm water management practices and the importance of reducing storm water pollution through information dissemination. As awareness increases, it is expected to result in greater public support for the SWMP and storm water pollutant reduction.

MCM#1 – PUBLIC EDUCATION AND OUTREACH

Section 2 – Fat-Free Sewers Pamphlet



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Fat-Free Sewers

Prevent Fats, Oils, and Greases from Damaging Your Home and the Environment



the water quality people
601 Wythe Street
Alexandria, Virginia
22314-1994 USA
Tel. 1-800-666-0206
Fax: 1-703-684-2492
www.wef.org



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Helping To Prevent Sewer Overflows And Backups Is Easy.

Fats, oils, and greases aren't just bad for arteries and waistlines; they're bad for sewers, too.

Sewer overflows and backups can cause health hazards, damage home interiors, and threaten the environment. A common cause of overflows is sewer pipes blocked by grease. Grease gets into the sewer from household drains as well as from poorly maintained grease traps in restaurants and other businesses.

Where Does the Grease Come From?

Grease is a byproduct of cooking that comes from meat fats, lard, oil, shortening, butter, margarine, food scraps, baked goods, sauces, and dairy products. When washed down the sink, grease sticks to the insides of sewer pipes (both on your property and in the street). Over time, it can build up and block an entire pipe.

Caution: Home garbage disposals do not keep grease out of the plumbing system. Moreover, hot water and products such as detergents that claim to dissolve grease only pass it down the line and cause problems elsewhere.

The results can be:

- Raw sewage overflowing in your home or the house next door.
- An increase in operation and maintenance costs for local sewer departments, which leads to higher sewer bills for customers.
- An expensive and unpleasant cleanup that often must be paid for by you, the home or business owner.
- Raw sewage overflowing into parks, yards, and streets.
- Potential contact with disease-causing organisms.



You Can Help!

Help prevent sewer overflows by:

- Never pouring grease down sink drains or into toilets.
- Putting baskets/strainers in sink drains to catch food scraps and other solids, and emptying them into the trash.
- Scraping grease and food scraps into a can or the trash for disposal (or recycling where available).
- Speaking with your friends and neighbors about how to keep grease out of sewers.

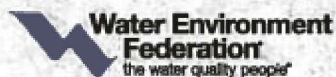
MCM#1 – PUBLIC EDUCATION AND OUTREACH

Section 3 – Too Cute to Pollute Pamphlet



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Too Cute To Pollute?



**Water Environment
Federation**
the water quality people®

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Alexandria, Virginia
22314-1994 USA
Tel. 1-800-866-0206
Fax. 1-703-684-2492
www.wef.org



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The Scoop on Pets, Pollution, and Water Quality

Looks, size, and diet don't matter—pets can pollute if you don't pick up after them. That's because pet waste left on the ground eventually contaminates the watershed. Waste components like fecal bacteria and nutrients are washed into storm drains, streams, and other receiving waters by irrigation, rain, melting snow, and flooding. They can also simply leach through the soil and into the groundwater. Even waste from smaller pets can have an impact on the local water environment.

It doesn't take long for one pet's daily contribution to accumulate into a harmful quantity. Pet waste steals oxygen from the water, killing fish and other wildlife and plants. Nutrients from animal waste feed algae growth that can degrade water quality. The related bacteria can also cause sickness and threaten a community's economic vitality. Whether left in an area that is rural or urban, wet or dry, wooded or open fields, paved or unpaved, or even your own backyard, pet waste can end up contaminating the watershed.

You Can Prevent Pet Pollution!

Pet waste is one type of pollution that can easily be addressed. A pet waste bag (biodegradable if possible) and environmental awareness are really all it takes to keep our water resources safe from this type of contamination. Pet walkers should just simply pick up the waste and place it in a trash can, flush it down the toilet (without bag), or otherwise dispose of it as their municipality allows. Be a responsible pet owner — don't let your pet pollute!

It's Worse Than Inconvenient

Stepping in pet waste is one thing, but leaving it unattended is against the law in many places. Beyond making water unsafe for drinking, swimming, boating, and fishing, unattended waste attracts flies that spread disease and pose risks to areas where children play. Even if you are not required to do so by law, be responsible and help protect the watershed where you live.

Dos and Don'ts for Pet Owners!

Do

- 🐾 Remember to bring a bag or other means to pick up waste when walking your pet.
- 🐾 Always pick up after your pet.
- 🐾 Dispose of pet waste in trash can, pet waste receptacle, or according to local laws.
- 🐾 Wash your hands with soap and water after pickup.

Don't

- 🐾 Leave pet waste on the ground anywhere.
- 🐾 Place pet waste in your compost pile or near water supplies or vegetable gardens.
- 🐾 Flush cat litter or bird seed down the toilet.
- 🐾 Forget to check your local ordinances.

MCM#1 – PUBLIC EDUCATION AND OUTREACH

Section 4 – Stop Sewer Backups Pamphlet



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Special thanks to the City of Lynchburg, Virginia, and Blair Communications for help with this brochure.

This brochure was prepared under Cooperative Agreement Assistance #CX824505 between the Water Environment Federation (WEF) and the U.S. Environmental Protection Agency. For more information about sewer backups, overflows, and downspout disconnection, contact your local sewer system authority, or

Water Environment Federation

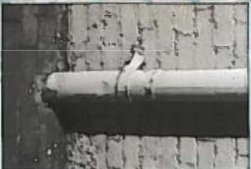
601 Wyrle Street
Alexandria, VA 22314-1994
Phone: 703/684-2400
Fax: 703/684-2492
Web site: <http://www.wef.org>

For additional copies of this brochure, contact WEF at 1-800-666-0206 or <http://www.wef.org>.



How to Safeguard Your Home and the Environment by Disconnecting Downspouts

Connected downspouts — what are they?



Many older homes, especially in cities, have gutters connected directly to the sanitary sewer. This means that rain from the roof runs directly into the sewer. Not all downspouts that look like this picture are connected to the sanitary sewer; some may empty into a storm drain.

Call your local sewer system authority or public works department to find out if your connected downspout empties into the sanitary sewer.

Why is this a problem?

The problem is too much water. Sanitary sewer systems can only handle a certain amount of water. During a rainstorm, water gets into the sewer from connected downspouts and other sources. When there is too much water for the system, the excess has to go somewhere, and that somewhere is often somebody's basement, a manhole, or a nearby creek or river. Municipalities have a legal requirement to stop water from overflowing out of sewers. Even if the water does not overflow, it's still a problem, because the wastewater treatment plant has to treat the extra water.



Why should you care?

Sewage backups and overflows are messy, costly, and a threat to health and the environment.

Cleaning house. When there is a sewer backup into a house, the homeowner may have to pay the cost



to clean up, repair damage, and replace ruined carpets and furniture. Basic homeowner's insurance often does not cover this damage (unless the policy has an added clause or "rider").

Health. Raw sewage contains microorganisms that can cause diseases such as hepatitis, giardiasis, and gastroenteritis.

Long term environmental damage. Raw sewage in streams and lakes can cause illnesses in fish, kill aquatic life, and make the water unusable for swimming, fishing, and as a drinking water source.



Higher costs mean higher utility rates. The utility ends up treating the extra water, and may even have to increase the size of the treatment plant. The utility may also have to pay fines when raw sewage is released to the environment. Increased utility costs are passed along to consumers as rate increases.

What can you do?

You should check to see whether disconnecting your home's downspouts can help solve the problem. Disconnection is usually a simple, relatively inexpensive process. The steps are shown on the inside of this brochure. Your local sewer system authority or public works department should be able to tell whether your downspouts are connected to the sanitary sewer and, if so, whether disconnection makes sense.

You can also let other people know why downspouts need to be disconnected and how sewer overflows cost the entire community.

How to Disconnect Your Downspout

Check Before You Start

The steps outlined below are general guidelines for disconnecting downspouts and do not apply in all situations. Contact your local sewer system authority or public works department to see what specific guidance is available and to obtain information on local conditions, materials, and regulations. You may want, or be required, to hire a professional contractor or plumber to do the work. In some areas, an inspection of the disconnection is also required. Be aware, too, that some municipalities discourage or prohibit downspout disconnection due to local zoning or concerns about runoff.

Use of the information provided in this brochure is voluntary. The organizations that prepared this brochure assume no responsibility for consequences arising from its use and specifically disclaim all liability for damages of any kind arising out of or resulting from the use of the information in this brochure.

1. Tools and materials you are likely to need:

safety glasses	bucket (for concrete)
work gloves	spare gutter pipe
hammer	splash block
chisel	gutter "elbows" or
hack saw	other discharge devices
measuring tape	flexible/corrugated pipe
screw driver	concrete mix (or other permanent,
trowel or other	weatherproof sealer)
digging tools	plastic boot cap

2. Safety

Make sure that you have the safety equipment that you need, including work gloves and safety glasses. Many disconnections involve hammering and sawing which can be hazardous to your eyes. Aluminum gutters can be extremely sharp after being cut, so protect your hands with work gloves.

3. Call before digging

If you bury part of your discharge pipe, remember that even digging a shallow trench can sever a utility line. To be safe, call your local utilities (most jurisdictions have a "call before you dig" hot line) to make sure you avoid digging near service lines.

Disconnection Steps

STEP 1 — Remove downspout from boot

Unless your gutter downspout can be easily lifted out of the boot, you'll need to cut it just a few inches above the boot—making sure that you've left enough room for the downspout "elbow" or other end-of-pipe device.



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STEP 2 — Remove the boot (Optional)

You can leave the boot in place, or remove the boot for a more finished look. To remove the boot, cut it with a hack saw, or hammer and chisel. Be sure to wear safety glasses, and remove sharp edges that remain on the pipe after cutting.



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STEP 3 — Seal the boot

The boot must be permanently sealed to keep water from entering the sewer line. There are different ways to seal the pipe so before proceeding, check to find out what approach is recommended for your area. Some jurisdictions suggest the following method:



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The pipe can be sealed with concrete or other material that makes a permanent, weatherproof seal. Before starting, check the pipe to make sure that you will not block any other junction (such as your

washing machine draining into the same pipe). Then push ball-cup newspaper tightly three or four inches down into the boot. Make sure that the fit is snug, otherwise the concrete could actually block the sewer. Carefully pour the concrete or other material that gives a permanent weatherproof seal into the pipe, and smooth the top surface. Other areas do not recommend using newspaper and suggest the use of friction or sewer plugs, which are often available from licensed contractors.

STEP 4 — Redirect rainwater with end-of-pipe device(s)

The last step is to redirect the rainwater away from the house. The exact approach depends on individual conditions. It is important that the rainwater discharges a safe distance from

your foundation (three or four feet is usually enough), that the runoff is not a nuisance to your neighbors, or causes other problems, like discharging across a sidewalk so that ice forms in the winter.



© Blair Communications

Sometimes all that is needed is an "elbow" pipe to the bottom of the gutter downspout and a plastic or concrete splashblock. Other situations (such as sloping ground) may require a different solution. There are a number of devices available designed to channel the rainwater away from your home (ask a hardware store to recommend the best one for your needs).

Check with your local sewer system authority or public works department for other redirection options in your area.

Disconnection is usually a simple, relatively inexpensive process.

Special Situations

Steep Slopes

If the gutter is next to a steep slope, be careful that the discharge from the new downspout will not wash away soil on the hillside. There are two ways to avoid this:

attach a pipe long enough to drain the rainwater to a safe area, or install an attachment that controls how fast water comes out of the gutter. Always make sure that you are not draining water onto a neighbor's property and that runoff from your downspouts does not cause erosion or flooding of your neighbor's yard. Do not discharge stormwater too close to your property line.



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Extended Boot

Some older homes have boots that extend several feet above the ground. You can leave the boot in place and permanently seal the top of the pipe (step 3) or you can remove the tall boot. If you remove the boot, you will usually need to install a new section of gutter pipe and then an end-of-pipe device (step 4).



© Blair Communications

Inadequate Drainage

Some gutters may be located on very flat ground with no place for the water to drain. One solution is to pipe the water safely away from the house with a pipe attached to the downspout's "elbow." Another option is to use a device that will disperse the water enough so that it doesn't form a puddle. Make sure that it is draining away from your foundation.

MCM#1 – PUBLIC EDUCATION AND OUTREACH

Section 5 – Drug-Free Drains Pamphlet



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Drug-Free Drains

You can help protect our water
from pharmaceuticals and
personal care products!



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Alexandria, Virginia
22314-1994 USA
Tel. 1-800-666-0206
Fax. 1-703-684-2492
www.wef.org

♻️ Printed on 100% recycled paper.

HS1802

12/2008



You can help protect our water from pharmaceuticals and personal care products!

Every day the average adult uses nine personal care products that contain 126 unique compounds that could end up in our water. In addition to traces of products like shampoo, toothpaste, sunscreen, and cosmetics, minute amounts of prescription and over-the-counter drugs also make their way into water. They should be limited or prevented from entering our environment.

Due to our increased use of these products and greater analytical sensitivity, very tiny amounts of compounds and drugs can be detected in conventional treatment plant outflow and end up in creeks, streams, and rivers. While there is no evidence these traces pose a risk to human health, scientists can sometimes find interference with aquatic organisms, and studies continue. Meanwhile, it's prudent to control what we put into water, and everyone's help is important.

In addition to following product recommendations for use and disposal and decreasing use when possible, you can help keep water clean by simply not flushing unused medication down the toilet. Controlling what goes down the drain is the easiest and most effective way to protect the environment, and you can start today!



Help keep our drains drug-free!

For more information on how to dispose of household products, please visit:

<http://www.wef.org/AboutWater/ForThePublic/FactSheets/FactSheetDocuments/HouseholdWaste.htm>

Visit the White House Office of National Drug Control Policy consumer guidance for the Proper Disposal of Prescription Drugs at

http://www.whitehousedrugpolicy.gov/drugfact/factsht/proper_disposal.html

MCM#1 – PUBLIC EDUCATION AND OUTREACH

Section 6 – Erosion and Sediment Control Brochure



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Stormwater Pollution Prevention for Small Residential Construction Sites



10 Steps to Stormwater Pollution Prevention on Small Residential Construction Sites

Stormwater management on small residential construction sites need not be complicated.

1 Protect Any Areas Reserved for Vegetation or Infiltration and Preserve Existing Trees

If you will be installing infiltration-based features such as rain gardens or bioswales, make sure these areas are designated as off limits to avoid compaction.

Save time and money by preserving existing mature trees during construction. Preserving mature trees minimizes the amount of soil that needs to be stabilized once construction is complete, and minimizes the amount of runoff during and after construction activity.

2 Stockpile Your Soil

EPA's CDP requires operators to preserve native topsoil on site unless infeasible and protect all soil storage piles from run-on and runoff. For smaller stockpiles, covering the entire pile with a tarp may be sufficient.

3 Protect Construction Materials from Run-On and Runoff

At the end of every workday and during precipitation events, provide cover for materials that could leach pollutants.

4 Designate Waste Disposal Areas

Clearly identify separate waste disposal areas on site for hazardous waste, construction waste, and domestic waste by designating with signage, and protect from run-on and runoff.

5 Install Perimeter Controls on Downhill Lot Line

Install perimeter controls such as sediment filter logs or silt fences around the downhill boundaries of your site.

6 Install Inlet Controls

Sediment control logs, gravel barriers, and sand or rock bags are options for effective inlet controls. Make sure to remove accumulated sediment whenever it has reached halfway up the control.

7 Install a Concrete/Stucco Washout Basin

Designate a leak-proof basin lined with plastic for washing out used concrete and stucco containers. Never wash excess stucco or concrete residue down a storm drain or into a stream!

8 Maintain a Stabilized Exit Pad

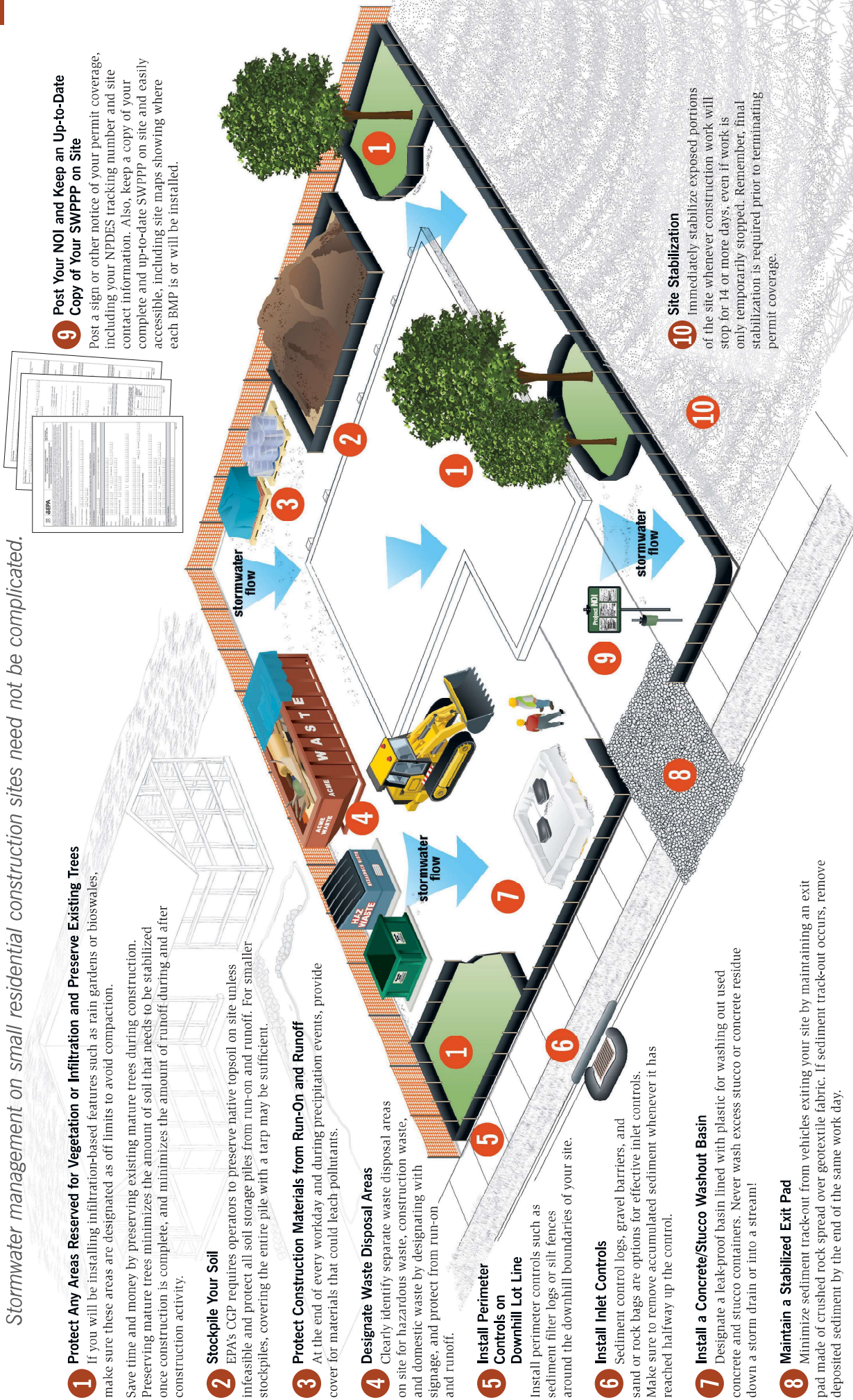
Minimize sediment track-out from vehicles exiting your site by maintaining an exit pad made of crushed rock spread over geotextile fabric. If sediment track-out occurs, remove deposited sediment by the end of the same work day.

9 Post Your NOI and Keep an Up-to-Date Copy of Your SWPPP on Site

Post a sign or other notice of your permit coverage, including your NPDES tracking number and site contact information. Also, keep a copy of your complete and up-to-date SWPPP on site and easily accessible, including site maps showing where each BMP is or will be installed.

10 Site Stabilization

Immediately stabilize exposed portions of the site whenever construction work will stop for 14 or more days, even if work is only temporarily stopped. Remember, final stabilization is required prior to terminating permit coverage.



EPA's Construction General Permit (CGP) Small Residential Lot Stormwater Pollution Prevention Plan (SWPPP) Template

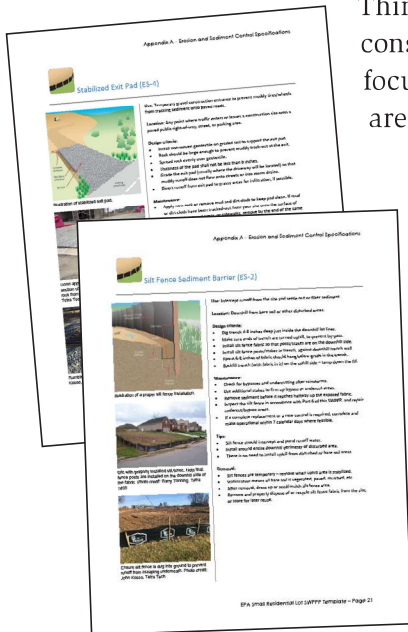
Who needs to seek coverage under the EPA CGP?

Stormwater discharges from construction activities that disturb one or more acres, or smaller sites disturbing less than one acre that are part of a common plan of development or sale, are regulated under the National Pollutant Discharge Elimination System (NPDES) stormwater permitting program. Prior to the start of construction, construction operators must obtain coverage under an NPDES permit, which is administered either by the state (if it is authorized to operate the NPDES program) or EPA. Where EPA is the permitting authority, operators may seek coverage under the EPA CGP. The CGP requires operators of construction sites to meet effluent limits (i.e., through the implementation of erosion and sediment controls) and requires operators to develop a SWPPP detailing erosion and sediment controls and pollution prevention measures that will be implemented to meet the requirements of the CGP.

What is the Small Residential Lot SWPPP Template?

The Small Residential Lot SWPPP Template is designed to help operators of small residential sites develop a streamlined SWPPP that meets the minimum requirements of EPA's CGP. This simplified template does not change, relax, or modify any existing conditions in the CGP, including the requirement to submit a Notice of Intent (NOI) for permit coverage.

How does it work?



Think of the Small Residential Lot SWPPP Template as a 1040EZ tax form for small construction sites. All of the same requirements apply, but compliance options are focused on only those controls that apply to small residential lot construction, and they are presented in a simplified, user-friendly format.

The Small Residential Lot SWPPP Template streamlines SWPPP development by providing a simplified menu of erosion and sediment control and pollution prevention practices that operators can select from to complete a SWPPP consistent with the minimum requirements in the CGP.

Easy to Use BMP Menu

The Small Residential Lot SWPPP Template provides operators with a walk-through menu of typical erosion and sediment control and pollution prevention practices (i.e., Best Management Practices or BMPs) appropriate for small construction sites.

Illustrated Appendix with Pull-Out BMP Spec Sheets

Clear, step-by-step BMP spec sheets for each practice you choose are provided in an illustrated appendix that you may edit based on your site-specific conditions.

Does my project qualify for EPA's Small Residential Lot SWPPP Template?

In order to use EPA's streamlined template, your site must meet a series of criteria, including:

- ✓ Projects must disturb less than one acre of land;
- ✓ Projects must be located outside of sensitive areas (areas with endangered species concerns, historic preservation issues, wetlands, etc.);
- ✓ Projects must not cause disturbance within 50 ft of a water of the U.S.;
- ✓ Projects must not require the use of chemical treatment for stormwater; and
- ✓ Projects must not disturb steep slopes.

To access EPA's streamlined Small Residential Lot SWPPP Template, visit:

www.epa.gov/national-pollutant-discharge-elimination-system-npdes/stormwater-discharges-construction-activities

MCM#2 – Public Participation / Involvement



CITY OF TIFFIN
STORM WATER MANAGEMENT PROGRAM
MCM#2 – PUBLIC PARTICIPATION/ INVOLVEMENT
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MCM#2 – PUBLIC PARTICIPATION/ INVOLVEMENT

Section 1 – Introduction



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MCM#2 – PUBLIC PARTICIPATION/ INVOLVEMENT INTRODUCTION

The City has implemented this Public Involvement/ Participation program to actively involve the public in storm water related efforts and development/implementation of the SWMP. Public involvement with the SWMP is expected to result in a better understanding of storm water pollution issues and a broader public support which will provide significant benefits to the City's storm water quality. Target audiences for the Public Participation/ Involvement program include Tiffin residents, business owners, and pet owners.

This program includes documentation of existing public involvement/ participation activities including recycling programs and community involvement events. The City also coordinates with outside parties including Ottawa, Sandusky, Seneca County Solid Waste District (OSS SWD) and other appropriate departments to aid in documenting these activities.

MCM#2 – PUBLIC PARTICIPATION/ INVOLVEMENT

Section 2 – City of Tiffin Curbside Recycling Program



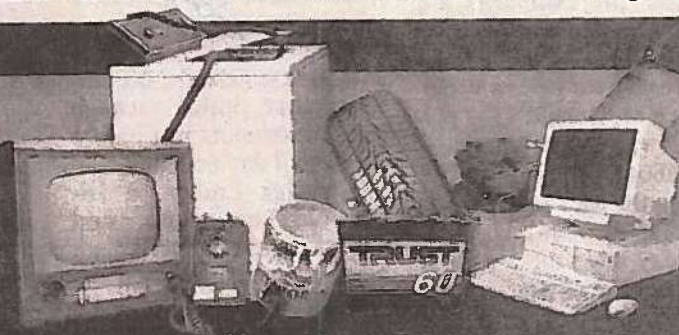
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✂ PLEASE CLIP & SAVE THIS ADVERTISEMENT ✂

Ottawa • Sandusky
Seneca County



JOINT
SOLID WASTE
MANAGEMENT
DISTRICT



2018 Special Recycling Event Dates

The collections will take place on Saturdays from 9:00 a.m. until 12:00 p.m.

For additional information, please call the District at 419-334-7222, toll-free at 1-888-850-7224 or look on our website at www.recycleoss.org.

If you are unable to attend our collections...

Our website lists more recycling options for computers, TV's, tires and more.

Ottawa County

Ottawa Co. Fairgrounds
W. St. Rt. 163, Oak Harbor

Sandusky County

Sandusky Co. Fairgrounds,
North parking lot,
712 North St., Fremont

Seneca County

Seneca Co. Fairgrounds,
South lot,
Co. Rd. 594, Tiffin

Television & Electronics Collections

April 21 & September 29 - 9:00 a.m. until noon

Household Hazardous Waste Collections

May 5 & September 8 - 9:00 a.m. until noon

Appliance Collections - 9:00 a.m. until noon

Ottawa County Only: May 12

Ottawa, Sandusky & Seneca Counties: September 15

Farm Tire Collection

Pre-register Monday, August 13 until Friday, August 24

Residential Tire Collection

October 27 - 9:00 a.m. until noon

MCM#2 – PUBLIC PARTICIPATION/ INVOLVEMENT

Section 3 – Aim to Be Green Recycling Program



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TOWNSHIP RECYCLING DROP-OFF PROGRAM



About the Program

- 42 participating sites in Ottawa, Sandusky and Seneca Counties.
- 150 8-yard recycling containers are stationed. The program began October 1, 2012.
- Residents can access the recycling containers 7 days a week, during daylight hours.
- Residents do not need to separate their recyclable materials.
- Weights at each location are recorded daily.
- Service provided by Rumpke Recycling at their Materials Recovery Facility. The MRF uses single stream recycling to sort material at 60,000 to 80,000 pounds per hour.



Participating Sites



Ottawa County Sites:

Allen Township	Catawba Island Township	Harris Township
Bay Township	Clay Township	Portage Township
Benton Township	Danbury Township	Port Clinton City / County Complex
Carroll Township	Erie Township	Salem Township

Sandusky County Sites:

Ballville Township	OSS Recycling Center	Townsend Township
Green Creek Township	Rice Township	Woodville Township
Village of Helena	Riley Township	York Township - Gordon Lumber Company
Jackson Township	Sandusky Township	
Madison Township	Scott Township	

Seneca County Sites:

Adams Township	Hopewell Township	Reed Township
Big Spring Township	Jackson Township	Scipio Township
Bloom Township	Liberty Township	Thompson Township
Clinton Township - Station #1	Loudon Township	Village of Attica / Venice Township
Clinton Township - Station #2	Pleasant Township	Village of Bettsville
Eden Township		

Detailed information can be found on the District's website at www.recycleoss.org

MCM#2 – PUBLIC PARTICIPATION/ INVOLVEMENT

Section 4 – Pollutant Minimization Plan



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MCM#2 – PUBLIC PARTICIPATION/INVOLVEMENT

BEST MANAGEMENT PRACTICE: POLLUTANT MINIMIZATION PLAN

As part of the City of Tiffin's Storm Water Management Program (SWMP), Minimum Control Measure (MCM) #2 Public Participation/Involvement, the City's Pollutant Minimization Plan (PMP) is described below.

The City is required to continue implementing a PMP for mercury in accordance with the general mercury variance conditions included in the WWTP NPDES Permit. The elements of a PMP include 1) a control strategy to locate, identify and, where cost-effective, reduce levels of mercury that contribute to discharge levels, 2) periodic monitoring of sources and the treatment system, and 3) annual reporting of results.

The objective of the City's Pollutant Minimization Plan for mercury is for all sanitary users to identify mercury sources that are located within the residence or business establishment. Upon identification of potential mercury sources the following steps should be considered:

1. All mercury sources that are located that no longer have use should be properly disposed of.
2. Mercury sources that are still in use should be removed or replaced with a non-mercury alternative if a viable cost-effective alternative is available. The mercury source should be properly disposed of.
3. Mercury sources that continue to be used within the business or residence should be Labeled, and properly disposed of when they are replaced or removed.

COORDINATION WITH OTHER SWMP COMPONENTS:

MCM #1 BMP: Internet-based communications should be coordinated with the Pollutant Minimization Plan.

MCM#2 – PUBLIC PARTICIPATION/ INVOLVEMENT

Section 5 – Memorandum of Understanding – City of Tiffin & Ottawa Sandusky Seneca County Solid Waste District



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MEMORANDUM OF UNDERSTANDING

Between:

Ottawa, Sandusky, Seneca Solid Waste District
1875 East State Street
Fremont, Ohio 43420

and

The City of Tiffin, Ohio
51 East Market Street
Tiffin, OH 44883

MEMORANDUM OF UNDERSTANDING BETWEEN THE CITY OF TIFFIN, OHIO AND THE OSS SOLID WASTE DISTRICT

Effective this 16th day of July, 2018, this Memorandum of Understanding (MOU) is made and entered into by and between the City of Tiffin, Ohio ("City") and the Ottawa, Sandusky, Seneca Solid Waste District ("District") (collectively the "Parties"). The purpose of this agreement is to set out the understandings of the Parties with regard to compliance with the Small Municipal Separate Storm Sewer System (Small MS4) permitting program under the National Pollutant Discharges Elimination System (NPDES) Permit No. 2GQ00031. This MOU shall be effective from the date above until otherwise terminated by the provisions set forth herein.

Recognizing the need for effective collaboration and assistance in satisfying certain requirements of the City's Small MS4 Permit:

- Storm water management participation/ involvement for the residents of Tiffin per Minimum Control Measure (MCM) 2: Public Participation/ Involvement;
- Compiling and providing appropriate information pertaining to respective responsibilities as described herein for Small MS4 Annual Reports;

The Parties accept this agreement as the document which describes the process for exchange. Cooperation between these two units of government will facilitate increased awareness of environmental issues and solutions to storm water management requirements as mandated by the City's Small MS4 Permit administered by Ohio EPA.

The District will be responsible for:

1. **Storm Water Participation for the Residents of Tiffin:** The District will offer recycling drop-off programs pertaining to public participation/ involvement for storm water management. This assists the City in compliance with certain requirements/expectations of MCM 2.
2. **Annual Reporting Information:** The District will furnish to the City information relating to the District's responsibilities as described herein including copies of all fliers, notices, and types of stakeholders reached, attendance records and any data collected. The District will submit annual reporting information to the City before March 1 of each year to assist in completing appropriate sections of the City's Small MS4 Annual Permit. This assists the City in compliance with certain requirements/expectations of MCM 2.

The City will be responsible for:

1. **Annual Reporting:** The City Engineering Department will maintain and submit annual reporting information relating to MCM 2: Public Participation / Involvement of the City of Tiffin Storm Water Management Program, including information prepared by the District and other

applicable departments, records, and corresponding information. The City may be also required to submit such information to Ohio EPA for compliance with NPDES Small MS4 Permit requirements.

Mutually Agreed Procedures:

1. The Parties shall meet at the end of each Small MS4 Permit term (every five years) to review the effectiveness of this agreement, coordinate individual and joint progress, and exchange information.
2. The City recognizes the District's obligation to offer its recycling drop-off programs.
3. The District shall furnish annual reporting information to the City, relevant to its responsibilities as outlined in this MOU.
4. This agreement may be amended or terminated at any time by mutual consent of both units of government or terminated by either party giving sixty (6) days' notice in writing to the other.

In witness thereof, this Agreement is executed and agreed to by:

City of Tiffin

**Ottawa, Sandusky, Seneca Solid Waste
District**

Name: Dale E. Thornton

Name: Tim Wasserman

Signature: 

Signature: 

Title: City Administrator

Title: Director

Date: 7/7/2018

Date: 7/9/18

MCM#3 – Illicit Discharge Detection and Elimination



CITY OF TIFFIN
STORM WATER MANAGEMENT PROGRAM
MCM#3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION
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- 3-2. City of Tiffin Comprehensive Storm Sewer Map
- 3-3. Illicit Discharge Field Tracing Procedure
- 3-4. Illicit Discharge Detection and Elimination Form
- 3-5. Memorandum of Understanding between the City of Tiffin and the SCGHD
- 3-6. Illicit Discharge Detection and Elimination Manual

MCM#3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION

Section 1 – Introduction



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MCM#3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION INTRODUCTION

This Illicit Discharge Detection & Elimination (IDDE) program is intended to detect and eliminate illicit discharges from the City's MS4 into the Sandusky River. The City uses a combination of mapping, monitoring, and control measures. Tiffin residents are informed of the hazards of illicit discharges and improper disposal of waste through web-based education about pollution control and storm water management themes included in the MCM 1 Public Education and Outreach program. City staff will also be properly informed of the hazards of illicit discharges and improper disposal of waste in municipal operations through the MCM 6 Pollution Prevention and Good Housekeeping program.

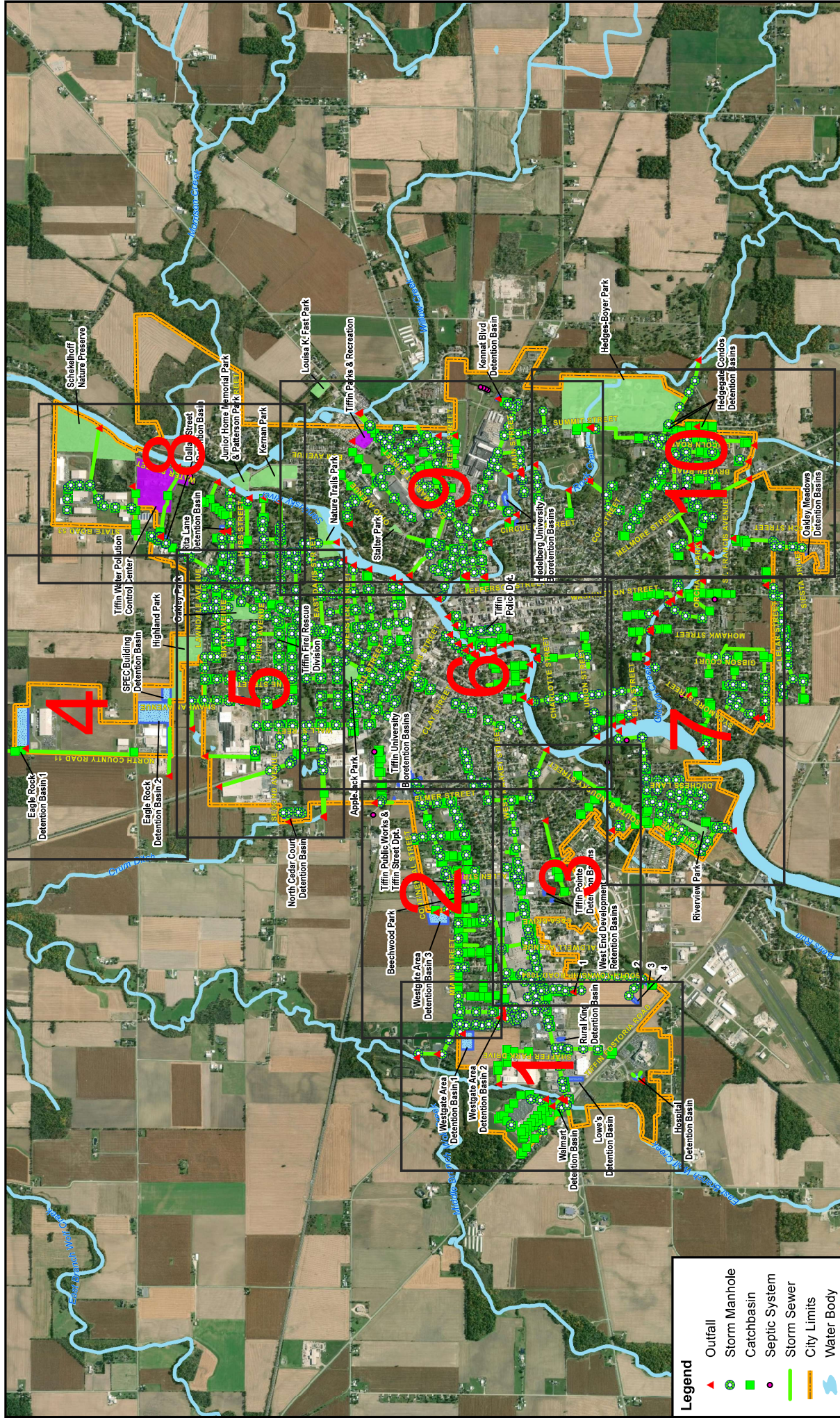
As part of the SWMP, the City has developed ordinance language to effectively prohibit illicit discharges into the storm sewer system and implement appropriate enforcement procedures and actions. The comprehensive storm sewer map will be updated annually to ensure accurate representation of the MS4. Dry weather screening is performed to detect and address any illicit discharges to the MS4, including discharges from illegal dumping and spills. Mechanisms are currently in place through the Seneca County General Health District (SCGHD) for investigating, tracing, and eliminating sources for illicit discharges from household sewage treatment systems (HSTs). The City coordinates with SCGHD to document all illicit discharge efforts through the IDDE program. The Illicit Discharge Detection and Elimination Manual (2006) was prepared by the Cuyahoga County Board of Health and is intended to serve as a guidance document for the City's IDDE efforts.

MCM#2 – PUBLIC PARTICIPATION/ INVOLVEMENT

Section 2 – Comprehensive Storm Sewer Map



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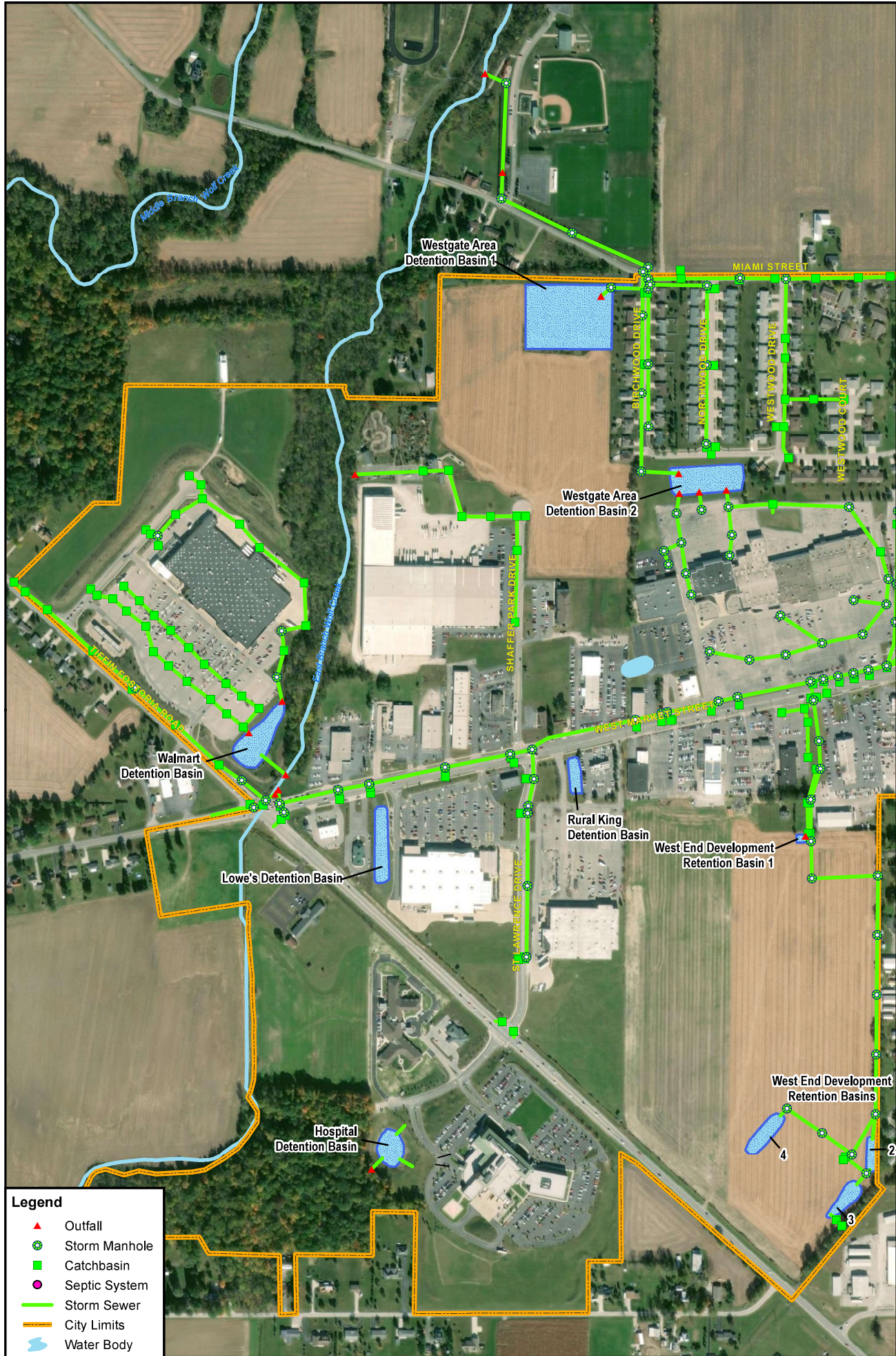
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 - Storm Sewer
 - City Limits
 - Water Body
 - Detention Basin
 - Building Facility
 - City Park



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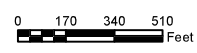


Tiffin SWMP
Comprehensive Storm Sewer Map



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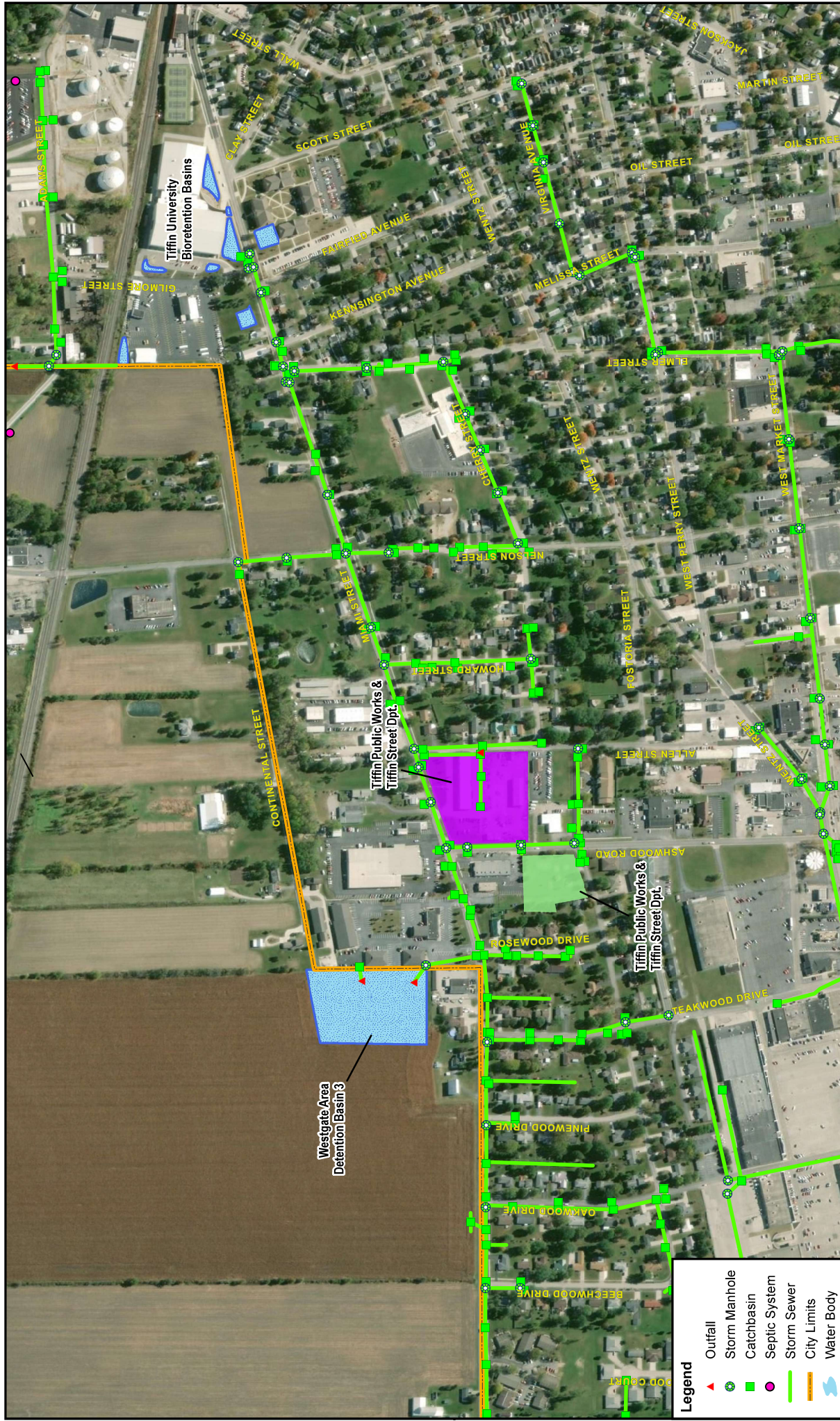
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- Building Facility
- City Park



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**Comprehensive Storm Sewer Map
Section 1**

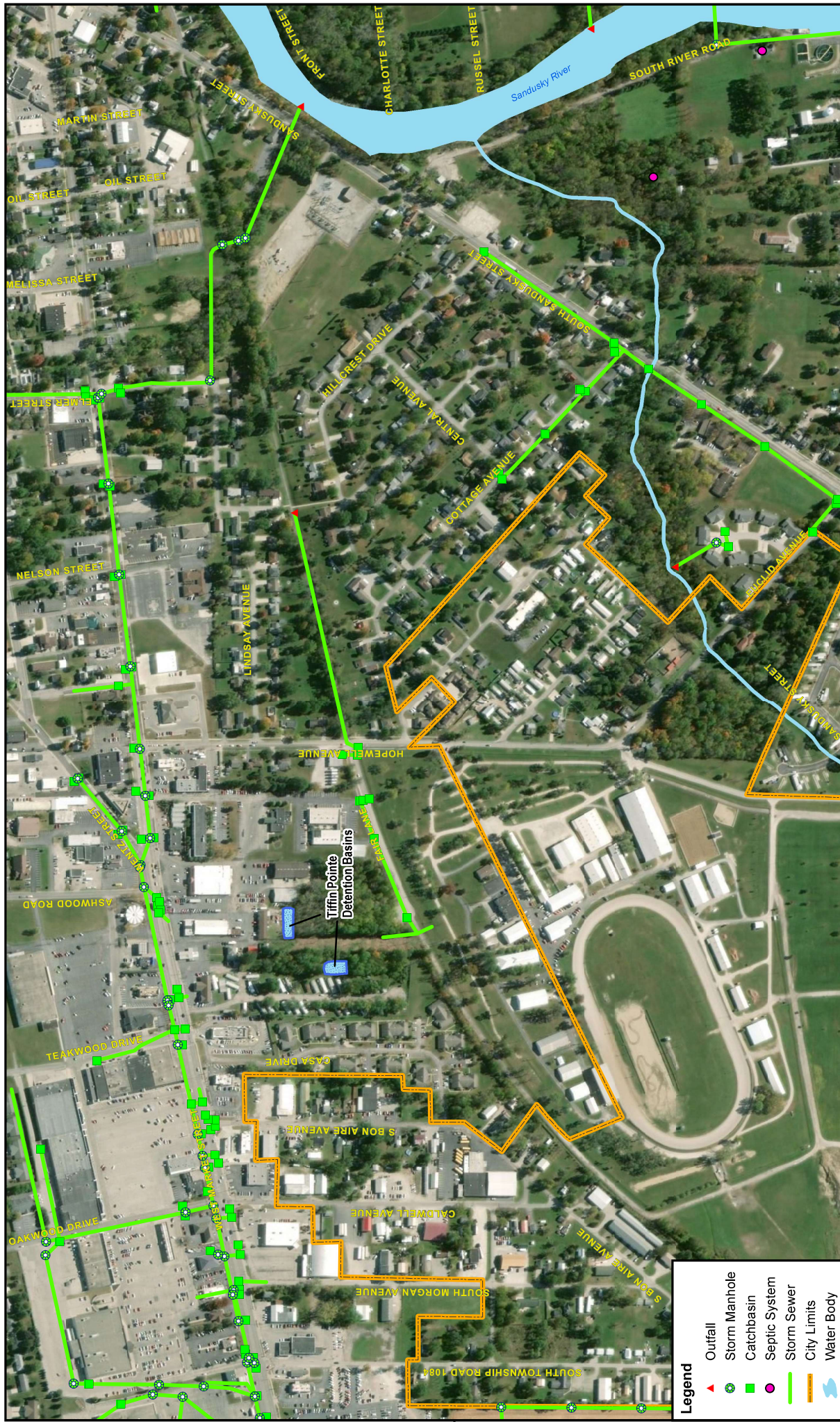


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Comprehensive Storm Sewer Map
Section 3



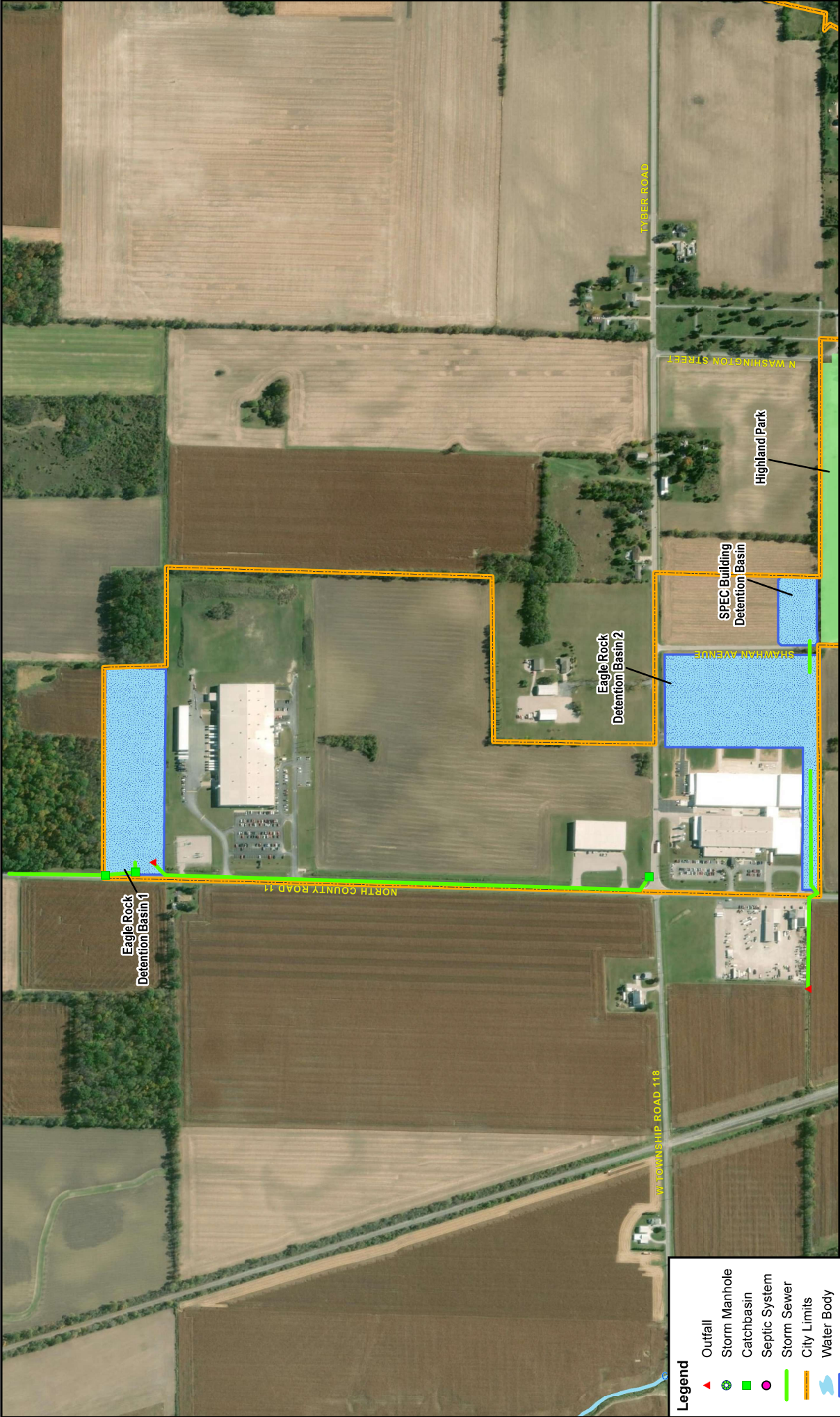
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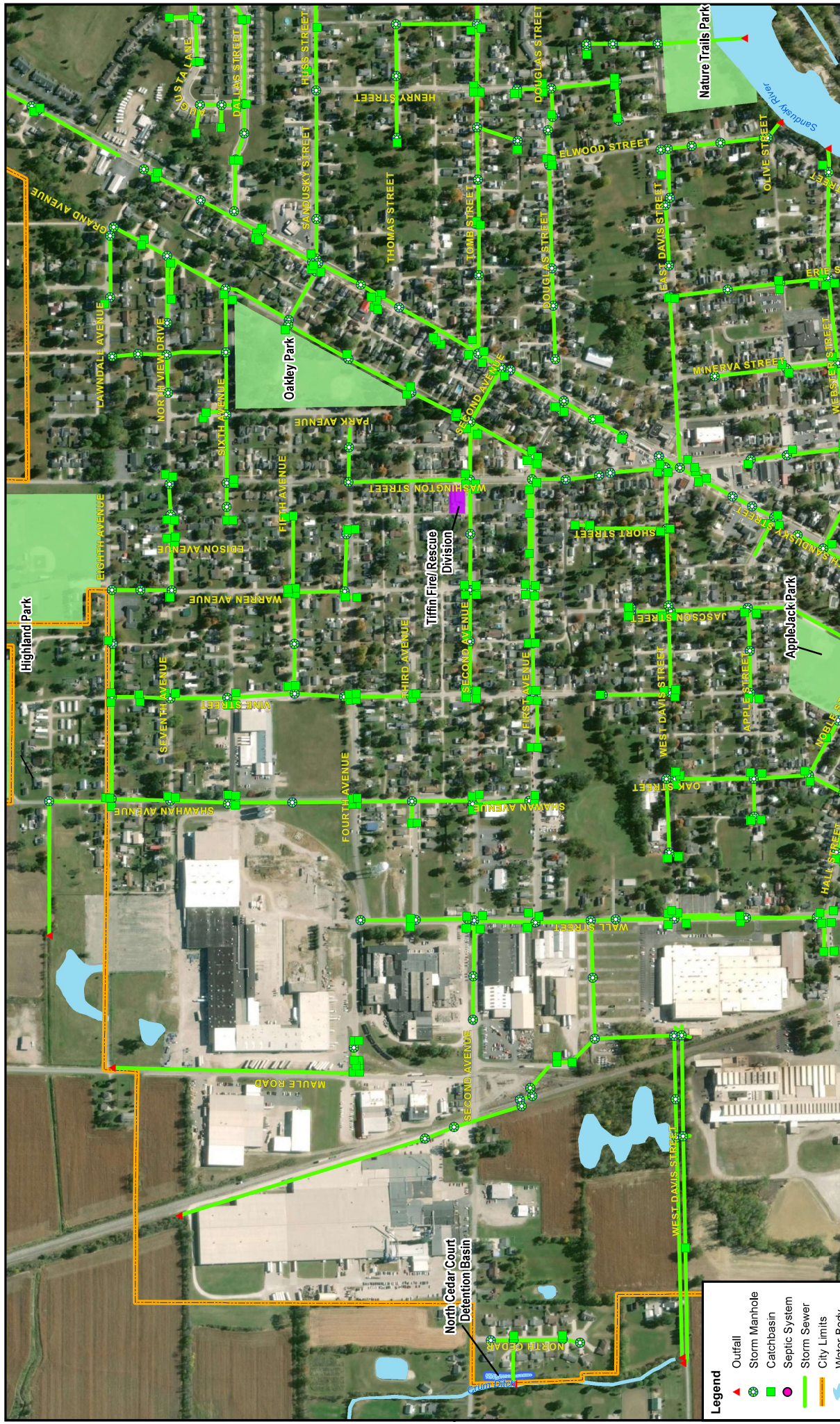


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- Building Facility
- City Park





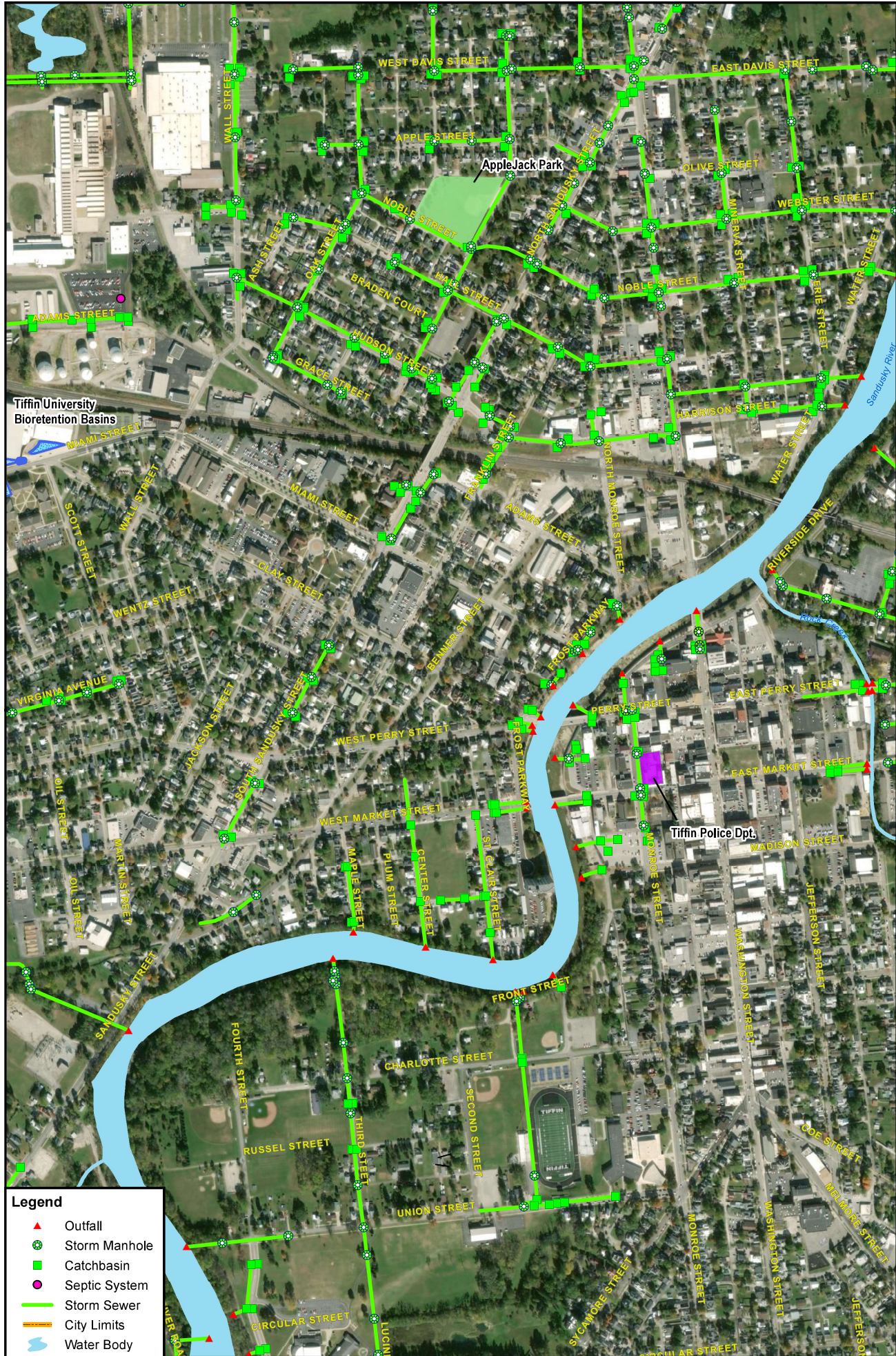
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Comprehensive Storm Sewer Map
Section 5



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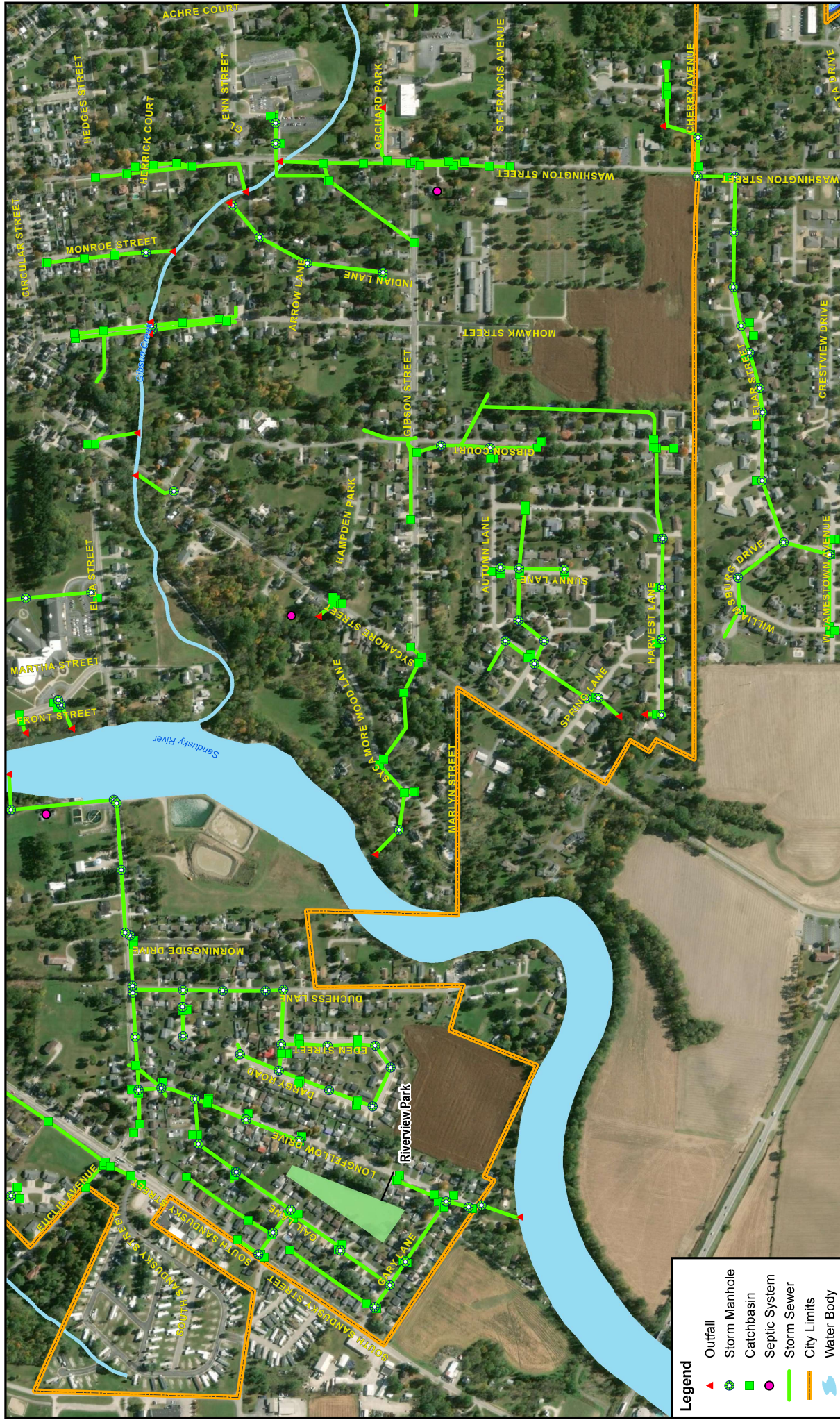
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- Storm Sewer
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- Water Body
- Detention Basin
- Building Facility
- City Park

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TIFFIN
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Legend

- Outfall
- Storm Manhole
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- Septic System
- Storm Sewer
- City Limits
- Water Body
- Detention Basin
- Building Facility
- City Park

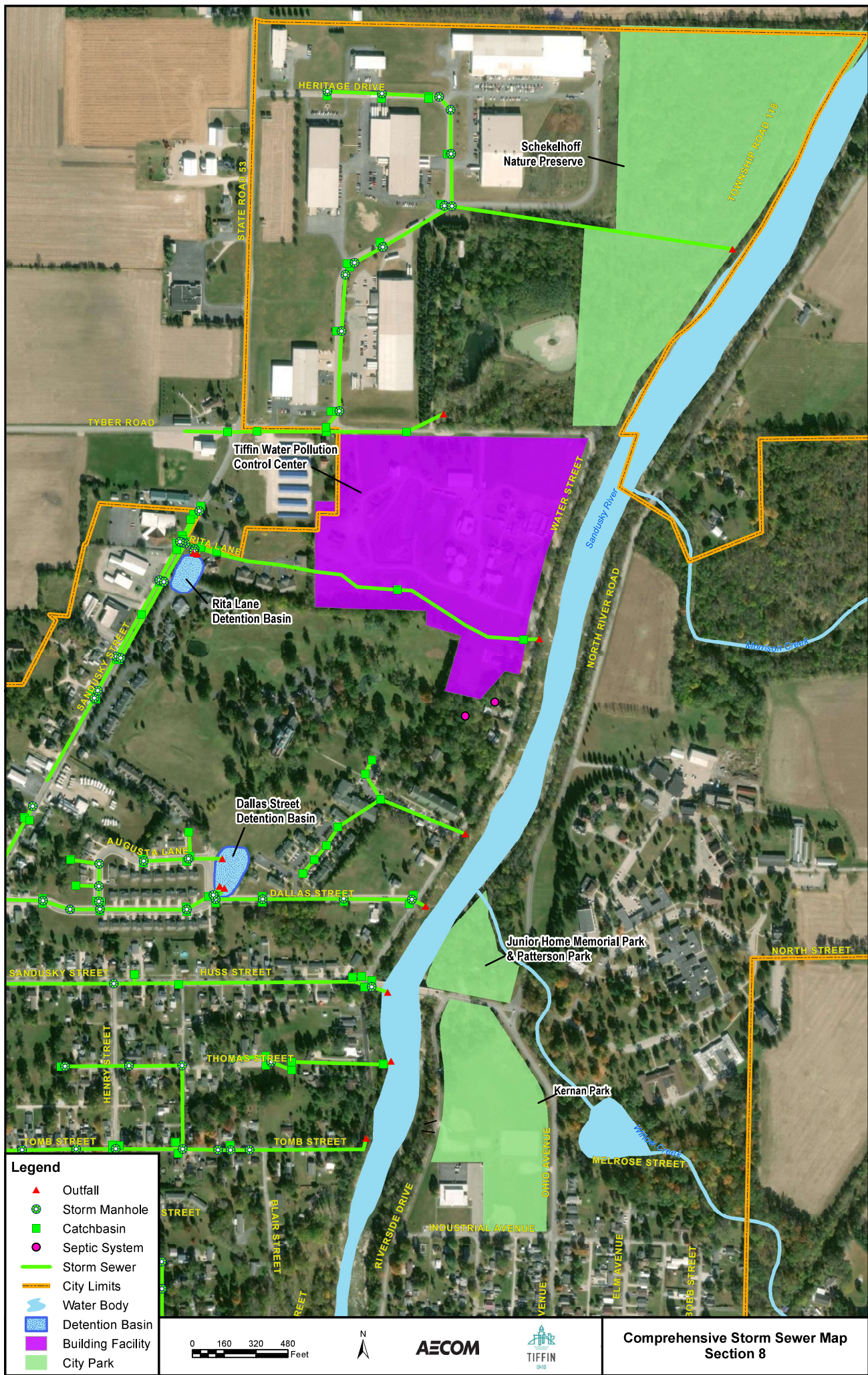
Comprehensive Storm Sewer Map
Section 7

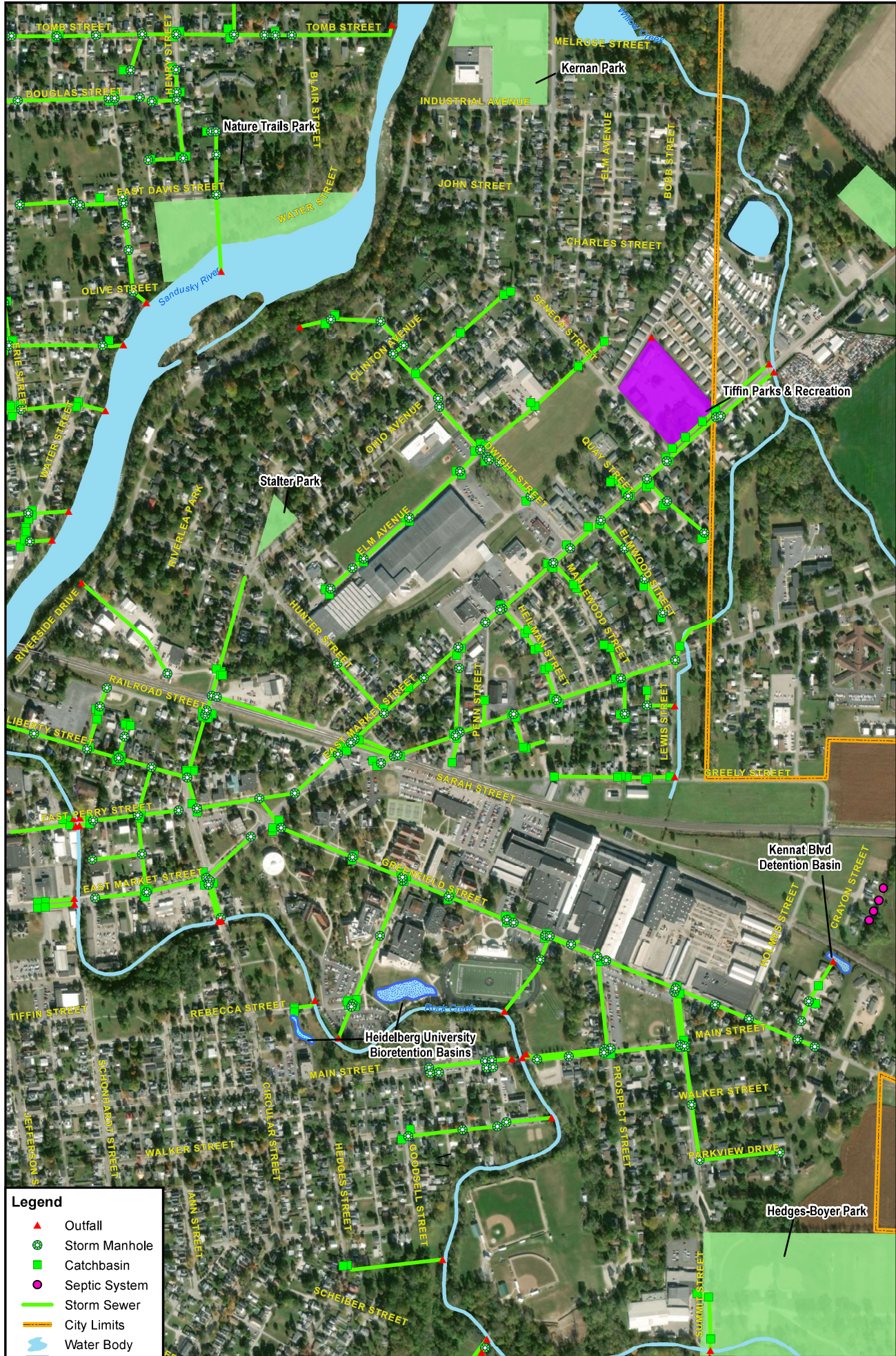
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TIFFIN OHIO

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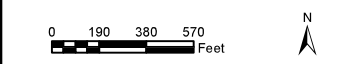
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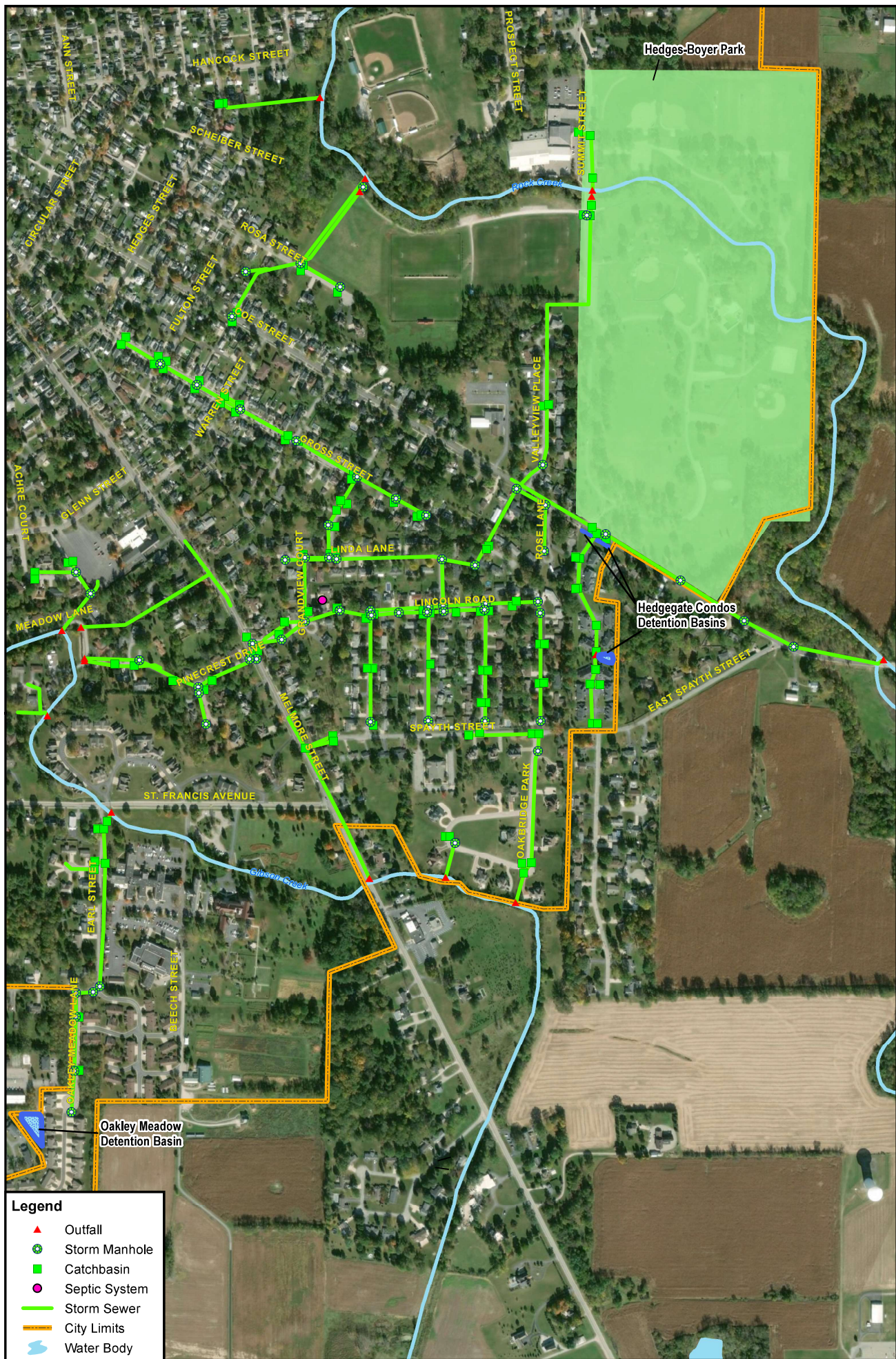
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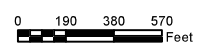
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**Comprehensive Storm Sewer Map
Section 9**



Legend

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- Water Body
- Detention Basin
- Building Facility
- City Park



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**Comprehensive Storm Sewer Map
Section 10**

MCM#3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION

Section 3 – Illicit Discharge Field Tracing Procedure



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CITY OF TIFFIN, OHIO

ILLICIT DISCHARGE FIELD TRACING PROCEDURE

1. Locate site of known discharge on the City Comprehensive Storm Sewer Map. (For discharging outfalls, locate one manhole upstream of the outfall.)

If discharge cannot be associated with a manhole, proceed to dye testing procedures. Dye test the closest properties.

2. Go to site.
3. Put on flashers, put out cones, and put on orange vest, if needed.
4. Open manhole using manhole pick.
5. Record visual observation about the pipe, its condition, and the water flowing out of the pipe including color, turbidity, and floatables.
6. Determine and record direction from which the source is flowing.
7. Using the City Comprehensive Storm Sewer Map, determine location of next manhole upstream in the direction of the source flow.
8. Repeat steps 2 through 7 until source of flow is identified as far upstream as possible.

If source of flow is due to a blockage in the sanitary sewer system causing an overflow, remove the blockage.

9. Put on gloves and collect three (3) samples from the upstream flow location. Collect samples in lab supplied bottles for lab analysis or sanitized containers.
10. Run total chlorine test on one sample on-site to determine if inflow may be from a potable water source.

If total chlorine sample tests positive, investigate possible water main breakage in area.

11. Complete IDDE Investigation Form (See attached).
12. Check to make sure all equipment is collected before leaving site.
13. Proceed to the City of Tiffin WWTP to run water quality tests for *E. Coli* and fecal coliform on samples.

If sample cannot be tested immediately, store samples on ice for up to six (6) hours.

Please refer to the Cuyahoga County Board of Health's Illicit Discharge Detection and Elimination Manual (2006) for additional guidance.

MCM#3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION

Section 4 – Illicit Discharge Detection and Elimination Form



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CITY OF TIFFIN, OHIO

ILLICIT DISCHARGE DETECTION AND ELIMINATION INVESTIGATION FORM

1. BACKGROUND DATA		
Date and Time of Inspection:		
Inspector Name:		
Outfall Location:		
Flow Present? <i>* If No, Skip to Section 3</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2. FIELD DATA FOR FLOWING OUTFALLS		
INDICATOR	CHECK if present	DESCRIPTION
Color	<input type="checkbox"/>	
Odor	<input type="checkbox"/>	
Turbidity	<input type="checkbox"/>	
Floatables	<input type="checkbox"/>	
Oil Sheen & Scum	<input type="checkbox"/>	
Foam	<input type="checkbox"/>	
Other: _____	<input type="checkbox"/>	
Notes/Comments:		



CITY OF TIFFIN, OHIO

**ILLICIT DISCHARGE DETECTION AND ELIMINATION
INVESTIGATION FORM**

3. FIELD DATA FOR FLOWING AND NON-FLOWING OUTFALLS		
INDICATOR	CHECK if present	DESCRIPTION
Outfall Damage	<input type="checkbox"/>	
Deposits/Stains	<input type="checkbox"/>	
Abnormal Vegetation	<input type="checkbox"/>	
Poor pool quality	<input type="checkbox"/>	
Pipe benthic growth	<input type="checkbox"/>	
Other: _____	<input type="checkbox"/>	
Notes/Comments:		
4. RESULTS		
Source Found?		
Sample Collected?	<input type="checkbox"/> Chlorine <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> E.Coli <input type="checkbox"/> Other _____	
IDDE Resolved?		
Follow-up Action Required?		

MCM#3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION

Section 5 – City of Tiffin and Seneca County General Health District Memorandum of Understanding



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TIFFIN

OHIO

MEMORANDUM OF UNDERSTANDING

Between:

Seneca County General Health District
71 S. Washington St. #1102
Tiffin, Ohio 44883

and

The City of Tiffin, Ohio
51 East Market Street
Tiffin, OH 44883



MEMORANDUM OF UNDERSTANDING BETWEEN THE CITY OF TIFFIN, OHIO AND THE SENECA COUNTY GENERAL HEALTH DISTRICT

Upon this 21st day of March, 2019, this Memorandum of Understanding (MOU) is made and entered into by and between the City of Tiffin, Ohio ("CITY") and the Seneca County General Health District ("DISTRICT"). This MOU shall be effective from the date above until otherwise terminated by the provisions set forth herein.

Recognizing the need for effective relationships and assistance in satisfying certain requirements of the CITY's Small Municipal Separate Storm Sewer (MS4) Permit, the parties identify the following items of responsibility:

- Designation of responsibility for response to illicit discharges to the MS4;
- Investigation of reports of illicit discharges to the MS4;
- Taking appropriate actions upon investigation to eliminate and/or prevent illicit discharges from further discharge to the MS4;
- Enforcement of violations of Chapter 909 of the Codified Ordinances of the City of Tiffin with respect to illicit discharges to the MS4;
- Coordination with other CITY departments and local agencies as needed for the detection, elimination, and enforcement of illicit discharges to the MS4; and
- Compiling and providing appropriate information pertaining to respective responsibilities as described herein as required for Small MS4 Annual Reports;

The CITY and the DISTRICT accept this agreement as the document which describes the responsibilities of the parties. Cooperation between these two governmental entities will provide solutions to problems encountered by the CITY as it plans for conservation of its environment and stormwater quality improvements per USEPA's mandated requirements.

The CITY will be responsible for:

1. **Illicit Discharge Detection and Elimination (IDDE) Response Protocol:** The CITY will provide a written Illicit Discharge Field Tracing Procedure (Procedure) to be followed by all CITY employees when an illicit discharge is suspected, discovered or reported at any of the City's MS4 outfalls. If the illicit discharge is found to be related to a home sewage treatment system (HSTS) the City will contact the DISTRICT.



TIFFIN

OHIO

2. **Assist the DISTRICT:** The CITY will provide assistance to the DISTRICT as appropriate for effectively carrying out responsibilities as described herein. Provision of additional assistance that may be needed above and beyond the capacities of the designated departments will be discussed and mutually agreed upon by both parties.
3. **Enforcement:** The CITY will provide enforcement action for illicit discharges to the MS4 not originating from HSTSs, to the extent authorized by Chapter 909 of the Codified Ordinances of the City of Tiffin.
4. **Record Maintenance:** The CITY will maintain records of investigation of illicit discharges using Illicit Discharge Field Tracing Procedure IDDE Forms. Such information may be required to be submitted to Ohio EPA for compliance with NPDES Small MS4 Permit requirements. The DISTRICT will maintain records related to HSTS locations and related illicit discharges.

The DISTRICT will be responsible for:

1. **Responding to HSTS Illicit Discharges in the MS4:** The DISTRICT has the authority to enforce, and is responsible for, an HSTS Operation and Maintenance Program in Seneca County under the authority of Ohio Administrative Code (OAC) 3701-29-19. The DISTRICT shall be responsible for responding to reports of illicit discharges to the MS4 related to HSTSs. The City is responsible for contacting the DISTRICT if an Illicit Discharge Field Tracing Procedure identifies an HSTS as a potential source of flow. The City shall also contact the DISTRICT upon report of an HSTS related illicit discharges to the MS4.
2. **Inclusion in Illicit Discharge Detection and Elimination (IDDE) Response:** The DISTRICT agrees to be included in the Illicit Discharge Field Tracing Procedure and any IDDE response when necessary.
3. **Assist the CITY:** The DISTRICT will assist the CITY or other departments or local agencies as appropriate for respective involvement in illicit discharge detection and elimination in the MS4.
4. **Enforcement:** The DISTRICT will provide enforcement action for illicit discharges to the MS4 originating from HSTSs, as identified by the CITY in accordance with the provisions of Chapter 909 of the Codified Ordinances of the City of Tiffin.



TIFFIN

OHIO

5. **Record Maintenance:** The DISTRICT will maintain records of complaints, violations, inspections, and investigations of illicit discharges and the location of HSTSSs. Such information may be required to be submitted to Ohio EPA for compliance with the CITY's NPDES Small MS4 Permit requirements.
6. **Annual Reporting Information:** At the end of each year, the DISTRICT will furnish to the CITY information relating to the DISTRICT's responsibilities as described herein and as required to complete appropriate sections of the CITY's Small MS4 Annual Report.

Agreed Procedures:

1. The DISTRICT and the CITY shall meet at the end of each Small MS4 Permit term (every five years) to review the effectiveness of this agreement, coordinate individual and joint progress, and exchange information.
2. The CITY and the DISTRICT recognize the obligation to make correspondence, inspection reports, and other written materials available to the public upon request in accordance with the Ohio Public Records Act.
3. The CITY and the DISTRICT agree that the cost for the CITY and the DISTRICT to carry out their respective responsibilities described herein will be borne independently by each entity for the responsibilities enumerated for their Agency in this Agreement.
4. This agreement may be amended or terminated at any time by mutual consent of both units of government.



TIFFIN

OHIO

In witness thereof, this Agreement is executed and agreed to on the date entered above by:

City of Tiffin, Ohio

Seneca County General Health District

Name (print) <u>DALE E THORNTON</u>	Name (print) <u>Beth M. Schweitzer</u>
Signature <u>Dale E Thornton</u>	Signature <u>Beth M. Schweitzer</u>
Title <u>CITY ADMINISTRATOR</u>	Title <u>Health Commissioner</u>
Date <u>3/21/19</u>	Date <u>3/20/19</u>

APPROVED AS TO FORM ONLY

JOSHUA D. CLARK
ASST. PROSECUTING ATTORNEY
79 S. WASHINGTON ST.
TIFFIN, OH 44883
419-448-4444

MCM#3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION

Section 6 – Illicit Discharge Detection and Elimination Manual



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ILLICIT DISCHARGE DETECTION AND ELIMINATION MANUAL

*A Guidance Manual
for Municipalities in the State of Ohio*



The Cuyahoga County Board of Health
Watershed Protection

July 2006

ILLICIT DISCHARGE DETECTION AND ELIMINATION MANUAL

A Guidance Manual for Municipalities in the State of Ohio

Prepared by the



Cuyahoga County Board of Health
5550 Venture Drive
Parma, Ohio 44130
216-201-2000
www.CCBH.net

Harry Stark, RS, MPA, Project Director
hstark@ccbh.net

Support for the IDDE Manual Project has been provided by Ohio Environmental Protection Agency, Office of Environmental Education



Ohio EPA Environmental
Education Fund
Lazarus Government Center
P.O. Box 1049
Columbus, Ohio 43214-1049
614-644-2873

Acknowledgements

This guidance manual was developed by the Cuyahoga County Board of Health (CCBH) as part of an Ohio EPA Environmental Education Fund Grant project. The Cuyahoga County District Board of Health has been serving the cities, villages and townships of Cuyahoga County since 1919. As Ohio's largest health district by population, and also one of the nation's largest, the Board of Health provides a broad range of quality driven public health programs and services. The CCBH's Watershed Protection Unit was developed and designed to protect public health and our water quality resources from the impact of point source and non-point source pollution. The Watershed Protection Unit stresses the utilization of watershed based planning within the Cuyahoga County Board of Health as well as collaborative efforts with partnering agencies.

This manual was written by Harry Stark, RS, MPA with assistance from Laura Travers, Pam Sawchyn, Jill Lis RS, and other CCBH staff. The CCBH would also like to thank the following people who contributed their time and expertise in the development of this manual.

Cathy Becker, North Olmsted Assistant City Engineer
Dan Bogoevsky, Ohio EPA
Chris Courtney, the C.W. Courtney Company
Ken Dombrowski, Wade Trim
Kyle Dreyfuss-Wells, Executive Director for the Chagrin River Watershed Partners
Jeff Duke, Northeast Ohio Regional Sewer District
Jeff Filarski, Chagrin Valley Engineering LTD
Tom Krezcko, Beachwood Staff Engineer
Mary Maciejowski, Northeast Ohio Regional Sewer District
Brian Mader, Steve Hovancsek and Associates
Francine Toth, Lake County General Health District

A special thanks to the Northeast Ohio Regional Sewer District (NEORSDD) for providing the Illicit Discharge Detection and Elimination Manual Outfall Database and Users Manual for this project. The database is located within the CD-ROM.

Along with these contributors, a number of reference documents were used in the development of this manual. These include:

- The Ohio EPA Phase II Storm Water Rules and Regulations (3745-39-03)
- Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments by the Center of Watershed Protection and Robert Pitt, University of Alabama, 2004
- Illicit Discharge Detection and Elimination Manual: A Handbook for Municipalities by the New England Interstate Water Pollution Control Commission, 2003
- Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine
- US EPA Phase II Storm Water Rules and Regulations
- US EPA Phase II Fact Sheets on Illicit Discharge Detection and Elimination Program

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Introduction

This manual is intended to serve as a guidance manual for Phase II Storm Water designated communities in Ohio. The purpose of this manual is to assist these communities in developing their illicit discharge detection and elimination (IDDE) programs required by the EPA's Phase II Storm Water program. This manual profiles the Illicit Discharge Detection and Elimination minimum control measure, which is one of six measures operators of a Phase II regulated small municipal separate storm sewer system (MS4) is required to include in its storm water management program to meet the conditions of its National Pollutant Discharge Elimination System (NPDES) permit.

Background of Phase II

Although the quality of the nation's waters has improved greatly since the passage of the Clean Water Act in 1972, many water bodies are still impaired by pollution. According to the U.S. Environmental Protection Agency, the top causes of impairment include siltation, nutrients, bacteria, metals, and oxygen-depleting substances. Polluted storm water runoff, including runoff from urban/suburban areas and construction sites are leading sources of impairment. To address this problem, EPA has put into place a program that regulates certain storm water discharges.

In 1990, the EPA promulgated Phase I of its storm water program under the National Pollutant Discharge Elimination System (NPDES) permit provisions of the Clean Water Act. Phase I addressed storm water runoff from "medium" and "large" municipal separate storm sewer systems (MS4s) generally serving populations of 100,000 or greater, construction activity that would disturb five or more acres of land, and 10 categories of industrial activity. To further reduce the adverse effects of storm water runoff, the EPA instituted its Storm Water Phase II Final Rule on December 8, 1999.

The Phase II Storm Water program is part of EPA's NPDES program. The Ohio EPA is the regulating authority responsible for the Phase II Storm Water regulations in Ohio.

The Phase II program regulates discharges from small MS4s located in "urbanized areas" (as delineated by the Census Bureau in the most recent census) and from additional small MS4s designated by the permitting authority.

The EPA's Storm Water Phase II Final Rule states that this storm water management program must include the following six minimum control measures:

- Public education and outreach on storm water impacts
- Public involvement and participation
- Illicit discharge detection and elimination (IDDE)
- Construction site storm water runoff control
- Post-construction storm water management in new development and redevelopment
- Pollution prevention and good housekeeping for municipal operations

Why Are Illicit Discharge Detection and Elimination Efforts Necessary?

Discharges from MS4s can often include wastes and wastewater from non-storm water sources, including illicit discharges, which can enter the system through various means. The result of this is untreated discharges that contribute to high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving water bodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health. Now, more than ever, it is necessary to create an awareness of what illicit discharges are doing. This will allow operators and citizens to determine the types and sources of these discharges entering their water bodies. This manual can help establish the legal, technical, and educational means needed to prevent and eliminate these discharges.

What Are Some Guidelines for Developing and Implementing This Measure?

The objective of the illicit discharge detection and elimination minimum control measure is to have regulated, small MS4 operators gain a thorough awareness of their systems and position themselves to take necessary action on eliminating illicit discharges. This awareness will allow them to determine the types and sources of illicit discharges entering their system and establish the legal, technical, and educational means needed to eliminate these discharges.

Finding, Fixing, and Preventing Illicit Discharges

The purpose of an IDDE program is to find, fix and prevent illicit discharges, and develop a series of techniques to meet these objectives. This manual describes the major tools used to build a local IDDE program.

Chapter 1: Illicit Discharge Detection and Elimination

What is an Illicit Discharge?



Figure 1: Designated MS4 outfall location

An **illicit discharge** is defined by the US EPA's Phase II Storm Water Regulations as "any discharge to an MS4 (Municipal Separate Storm Sewer System) that is not composed entirely of storm water..." with some exceptions. These exceptions include discharges from NPDES-permitted industrial sources and discharges from fire-fighting activities. Illicit discharges are considered "illicit" because MS4s are not designed to accept, process, or discharge such non-storm water wastes.

In most communities, the MS4 is directly connected to a waterbody and does not receive any type of treatment prior to its discharge to receiving water bodies of the United States. Because of this non-treatment, it is vital that only storm water be discharged from these MS4s.

The general permit received by Phase II regulated communities requires that those communities develop an illicit discharge detection and elimination (IDDE) program. This program will assist communities in meeting their requirement set forth in their general NPDES permit. This guidance manual is designed to assist designated communities in establishing their IDDE program.

Types of Illicit Discharges

For any IDDE program to be successful, it is important to clearly understand the different types of illicit discharges so that individuals can take the necessary steps for elimination. This includes frequency of discharge and surrounding land use issues. Once an IDDE program is established and a community can investigate the frequency of discharge and land use issues associated with these discharges, then the possibility exists to trace the illicit discharge back to its source and eliminate it. Illicit discharges can be separated into three (3) categories based on frequency of discharge:

1. **Transitory Illicit Discharge:** These are typically a one-time event. They can result from spills, dumping, and line breaks. These types of discharges are often the most difficult to investigate and trace back to its source. Methods for reducing this type of discharge are to educate the public on storm water and illicit discharge, establishment of a “hotline” telephone number for the public to call if any discharges are observed, and education of the community’s investigative responses to sources of illicit discharge.
2. **Intermittent Illicit Discharge:** These are typically discharges that occur occasionally. They can occur several hours per day, week or over the course of a year. They can happen as the result of line breaks or cross connections. Again, the establishment of a “hotline” telephone number for the public to call if any discharges are observed is recommended.
3. **Continuous Illicit Discharge:** These direct connections into the MS4 can be from sanitary sewers, cross connections, infrastructure problems with a sanitary sewer system, or malfunctioning household sewage treatment systems (HSTS). This type of discharge is the easiest to find, investigate, trace and eliminate from the MS4. These types of discharges also have the greatest impact because of the constant pollutant loading into a water body.

Table 1-1: LAND USES, LIKELY SOURCE LOCATIONS AND ACTIVITIES THAT CAN PRODUCE *TRANSITORY OR INTERMITTENT* ILLICIT DISCHARGES

Land Use	Likely Source Locations	Condition/Activity that Produces Discharge
Residential	<ul style="list-style-type: none"> · Apartments · Multi-family · Single Family Detached 	<ul style="list-style-type: none"> · Car Washing · Driveway Cleaning · Dumping/Spills · Equipment Wash-downs · Lawn/Landscape Watering · Septic System Maintenance · Swimming Pool Discharges · Laundry Wastewater · Improper Plumbing (garage floor drains)
Commercial	<ul style="list-style-type: none"> · Campgrounds/RV Parks · Car Dealers/Rental Car Co. · Car Washes · Commercial Laundry · Gas Stations/Auto Repair Shops · Marinas · Nurseries and Garden Centers · Oil Change Shops · Restaurants · Swimming Pools · Service Garages 	<ul style="list-style-type: none"> · Building Maintenance (power washing) · Dumping/Spills · Landscaping/Grounds Care (irrigation) · Outdoor Fluid Storage · Parking Lot Maintenance (power washing) · Vehicle Fueling · Vehicle Maintenance/Repair · Vehicle Washing · Wash-down of Greasy Equipment & Grease Traps
Industrial	<ul style="list-style-type: none"> · Auto Recyclers · Beverages and Brewing · Construction Vehicle Washouts · Distribution Centers · Food Processing · Garbage Truck Washouts · Marinas, Boat Building and repair · Metal Plating Operations · Paper and Wood Products · Petroleum Storage and Refining · Printing 	<ul style="list-style-type: none"> · All Commercial Activities · Industrial Process Water or Rinse Water · Loading and Un-loading Area Wash-downs · Outdoor Material Storage (fluids)
Municipal	<ul style="list-style-type: none"> · Airports · Landfills · Maintenance Depots · Municipal Fleet Storage Areas · Ports · Public Works Yards · Streets and Highways 	<ul style="list-style-type: none"> · Building Maintenance (power washing) · Dumping/Spills · Landscaping/Grounds Care (irrigation) · Outdoor Fluid Storage · Parking Lot Maintenance (power washing) · Road Maintenance · Emergency Response · Vehicle Fueling · Vehicle Maintenance/Repair · Vehicle Washing

SOURCE: Modified from *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection, 2004, p. 12, Table 2.

Table 1-2: LAND USES, LIKELY SOURCE LOCATIONS AND ACTIVITIES THAT CAN PRODUCE *CONTINUOUS* ILLICIT DISCHARGES

Land Use	Condition or Activity that Produces Discharge
Residential	<ul style="list-style-type: none"> · Failed sanitary sewer infiltrating into storm drain · Sanitary sewer connection into storm drain · Failed septic systems discharging to storm drain system
Commercial/Industrial	<ul style="list-style-type: none"> · Failed sanitary sewer infiltrating into storm drain · Process water connections into storm drain · Sanitary sewer connection into storm drain
Municipal	<ul style="list-style-type: none"> · Failed sanitary sewer infiltrating into storm drain · Sanitary sewer connection into storm drain

Source: Table from *Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine*, Casco Bay Estuary Partnership.

The tables outlined above examine the likely source locations that contribute illicit discharges to an MS4. Land use can predict the potential for these discharges. By understanding the possible discharges emanating from land use activities, it allows for the IDDE program manager to thoroughly utilize this knowledge in identifying illicit discharges and their potential sources. Industrial facilities are regulated by additional permits through the EPA. For industrial problems, please contact your local EPA office and refer to: www.epa.state.oh.us/dsw/storm/index.html.

Mode of Entry

Illicit discharges can also be classified based on how they enter the storm drain system. This entry can be direct or indirect. **Direct entry** means that the discharge is directly connected to the storm drain pipe system via a pipe. This type of entry will produce discharges that are either continuous or intermittent. Direct entry usually occurs when there are sewage cross-connections, or where there are industrial and commercial cross-connections. **Indirect entry** means that flows, which are generated outside the storm drain system, enter through storm drain inlets or by infiltrating through the joints of the pipe. Generally, indirect modes of entry produce intermittent or transitory discharges. This type of entry can include groundwater seepage into the storm drain pipe, spills, dumping, outdoor washing activities, and irrigation from landscaping or lawns that reaches the storm drain system.

What are the Elements of an Effective IDDE Program?

Ohio EPA states that the following must be incorporated in an IDDE Program:

- Develop a storm sewer system map showing the location of all outfalls, and the names and location of all surface waters of the state that receive discharges from those outfalls, this also must include the location of all home sewage treatment systems (HSTS) that discharge directly into an MS4;
- To the extent allowable under law, effectively prohibit, through ordinance or other regulatory mechanism, non-storm water discharges into your storm sewer system and implement appropriate enforcement procedures and actions;
- Develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, to your system, including a program for dry weather inspections;
- Inform public employees, businesses, and the general public of hazards associated with illegal discharges;
- Develop a list of occasional and incidental non-storm water discharges that will not be addressed as an illicit discharge. This can include charity car washes.

Does This Measure Need to Address All Illicit Discharges?

No. The IDDE program does not need to address all illicit discharges unless you identify them as significant contributors of pollutants to your small MS4. Under the Ohio EPA rules for Phase II Storm Water, these include:

- water line flushing
- landscape irrigation
- diverted stream flows
- rising ground waters
- uncontaminated ground water infiltration
- uncontaminated pumped ground water
- discharges from potable water sources
- foundation drains
- air conditioning condensation
- irrigation water
- springs
- water from crawl space pumps
- footing drains
- lawn watering
- individual residential car washing
- flows from riparian habitats and wetlands
- dechlorinated swimming pool discharges
- street wash water
- Discharges or flows from fire fighting activities are excluded from the effective prohibition against non-storm water and need only be addressed where they are identified as significant sources of pollutants to surface waters of the state.

Chapter 2: Mapping / Inventory

What is an MS4?

According to the Ohio EPA, the definition of an MS4 does not solely refer to municipally-owned storm sewer systems, but rather, is a term of art with a much broader application that can include, in addition to local jurisdictions, State departments of transportation, universities, local sewer districts, hospitals, military bases, and prisons. An MS4 also is not always just a system of underground pipes – it can include roads with drainage systems, gutters and ditches. The regulatory definition of an MS4 is provided below:

“municipal separate storm sewer means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- (i) Owned or operated by a State, city, township, county, district, association, or other public body (created by or pursuant to State law) including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, that discharges into waters of the state.
- (ii) Designed or used for collecting or conveying storm water;
- (iii) Which is not a combined sewer; and
- (iv) Which is not part of a Publicly Owned Treatment Works.”

Basically, when the field crew is performing the inventory of MS4 outfalls, a good understanding is needed as to the community and the outfalls possibly located within a water body. Most people know that a storm sewer outfall is an MS4 outfall. However, you must remember that ditches and catch basins are considered MS4s as well.



Figure 2: Storm Sewer MS4 outfall



Figure 3: Ditch MS4 outfall

Mapping

The Ohio EPA's NPDES requirements for small MS4s state that one of the first mandatory elements of the IDDE program is to "develop, if not already completed, a storm sewer system map showing the location of all outfalls and the names and location of all surface waters of the state that receive discharges from those outfalls". (OEPA NPDES requirements).



Figure 4: Map showing MS4 outfall locations.

Review Available Information

Many communities in Ohio have already developed detailed maps of their storm and sanitary sewer systems, while others have scattered information and still others have no information. In order to develop a map, communities need to collect any existing information on their storm sewer system. The following is a list of possible resources that communities should collect and review when developing a comprehensive database for their storm sewer system. Identifying outfall locations may help prioritize areas that may have high priority outfalls.

- Review city records – city records can include a variety of maps as detailed below as well as information obtained regarding complaints filed with the community on possible illicit discharges emanating from a possible MS4 outfall.
- Zoning maps
- Drainage maps
- Subdivision maps
- Department of transportation maps
- Storm drain maps
- Age of infrastructure and development – this information is important when determining and prioritizing areas with possible illicit discharges. Older areas of infrastructure will have a higher priority.
- Location of septic systems, both household and commercial – this information is important when prioritizing illicit discharge locations and should be given a high priority.

- Identify water bodies and watersheds within the community – this information will provide the community a sense of where they exist within a larger watershed as well as the water bodies that they contain.
- Water quality information – this will assist the community in evaluating areas within their community that have impaired water bodies, as well as areas with high bacterial counts.
- Review data from local health departments on locations of HSTS that discharge to an MS4. These systems must be included on the map along with the MS4 outfall locations.

Once the community has compiled this information, it is necessary to perform field activities to locate the MS4 outfall locations as well as verify the information compiled in the review of any documents the community used.

Mapping the Storm Sewer System

Once a community has compiled the available information on their storm sewer systems, then it is necessary to perform field activities. The field survey will be necessary to create a map or to verify and update an existing map. These field activities will serve a number of purposes. This includes:

- Provide data to the community as to the location of their MS4 outfall locations.
- Provide data on possible areas of illicit discharges.
- Provides data as to the condition of the water bodies within the community. This can include possible areas that can cause flooding problems (water bodies with excessive amounts of trees and debris obstructing the flow of water) during periods of high water flow.
- It allows for the prioritization of areas in regards to possible illicit discharges by the observance of pollution in a specific area.

The field survey will include a number of steps. These basic steps will be expanded upon in the next section and include:

- Contact regional partners to see if a numbering system already exists for the outfalls in your location. Include the Board of Health, Sewer District, County Engineer, Soil and Water Districts.
- Survey of all water bodies located within a community on foot or by boat to look for all outfalls in a waterbody.
- Note the locations of the outfalls on a map.
- Assign a number or code for each outfall that will be easy to understand and logical. (reference to IDDE Outfall Database – Outfall Identification and Stream Naming Convention document in Appendix A)
- Fill out a survey sheet for each outfall located.

It is vital that when performing the field inventory that the public is made aware of the process. The public is very aware of what is happening in their community and it is important to keep them informed during this process. This can be done in a variety of ways: letters/postcards to homeowners, newsletters, and community webpage.

Personnel safety is also extremely important during this process. Walking or boating water bodies can be potentially very hazardous and safety precautions must be utilized during this phase of your IDDE program. Wearing safety vests, carry a first aid kit, being careful while walking a water body due to algae growth (makes the rocks extremely slippery) and dark water (can contain unexpected deep holes and other items which could cut the surveyor's leg). Safety in the field is vital. Typical surveys should always be done with two field staff (if available). All field staff should carry appropriate ID's. Also, be aware of possible confined space locations when entering culvert pipes and follow confined space protocols for your location. Remember, like the mapping component, during the field investigations, there will be remote areas that the field staff will be inspecting. If injury occurs, the extra field staff is a necessity. Also be aware of the locations where field inspections will occur because specific locations may present specific sources of safety concerns. Inform storm water manager or appropriate personnel where field surveys will be conducted on any particular day for follow up if required.

Field Survey



Figure 5: Field survey of outfall locations

The field survey includes a number of processes to accurately provide the desired information that the community needs in order to effectively develop an IDDE program. Attached to this document in Appendix B is a field form that can be used during the field surveys and is also located within the attached database. The field survey begins by compiling all information that the community has obtained on their storm sewer systems as well as information as to the locations of their MS4 outfall locations. This information can be in the form of a map or in written comment. Once this information is obtained, it is vital to bring the information along during the field survey to verify the information or to locate the outfall locations. Equipment for successful field surveys includes:

- Existing paper maps – important to mark them in the field with the locations of the outfalls. It also allows the field crew the ability to know where they are in relation to specific areas within the community as they walk the water bodies.
- Field / survey sheets (located in Appendix B and C)
- Digital camera
- GPS unit
- Clip boards and pens
- Tape measure
- Waders (either chest or hip)
- Water proof flash light
- First aid kit
- Cell phone or hand held radio
- Cones/safety vests

Field surveys are best conducted during low flows of the surface water ways to ensure that all MS4s are observable. During high water conditions, some MS4s may be covered and therefore missed during the inventory phase. During a field survey, the field crew must be aware of how to properly perform the field survey. The survey must be organized in a manner as to accurately obtain the information the community needs for their mapping component of their IDDE program. The first step is to utilize the field maps and plan a course of action as to effectively walk or boat the waterbodies within the community. The field surveys of these waterbodies can be done in a variety of ways, including:

- Performing the survey in a section of the community (southeast, northeast, etc).
- Performing the surveys on one waterbody as it traverses through the community. This can include just walking the main branch first and then follow-up with the tributaries at a later date, or to walk the main branch and walk the tributaries as you come upon them in the field.
- Utilizing all of the above.



Figure 6 and 7: Field surveys of outfall locations.

Once you develop your methodology, make sure all staff is familiar with the process that will be performed during the activity in the field. It is difficult to have one methodology for every community. During field surveys, the Cuyahoga County Board of Health uses all approaches depending on the community that is being surveyed. This methodology depends on the community and how the water bodies traverse that community. In some circumstances, it is easier to walk the main branch of a stream and at a later date walk the tributaries. This is preferred if the main branch is a long stream that is difficult to reach. Likewise, if the main branch is somewhat shorter in length and is easy to access, it is much better to walk a stream's main branch, and then as a tributary comes into that stream is located, to walk that tributary to its source or to the community boundary.

Once a selected methodology is decided upon, all must realize that this can change once the field survey is started. Methodologies created in the office are not always the same once field work is started. All must be flexible to change once the field survey does begin.

The field survey begins by deciding where a creek will be entered by the survey crew and the utilization of the outfall site numbering system. Typically, this should be done by walking the waterbody upstream, since the numbering system developed by the Northeast Ohio Regional Sewer District is designed to go upstream from the downstream location.

Downstream is defined as to where the stream is flowing. **Upstream** is defined as where the stream is flowing from. If at all possible, walking upstream allows for the accurate numbering of the outfalls while in the field.

The numbering of outfall locations is very important with the overall IDDE program. Having a rationale in place in the numbering of your outfall locations will enable future follow ups and easy determination as to the location of these outfall locations.

The first part of numbering any outfall relies on the waterbody itself. The first four digits of the outfall ID should be associated with the waterbody. For example:

- Abrams Creek Main Branch would be ACMB.
- Abrams Creek Tributary 1 would be ACT1.



Figure 8: Outfall mapping

The next four components of the outfall ID consists of the number of that outfall. This, too, is a four digit number.

Examples include:

- ❖ A stream traverses Community A. This stream is the main branch and flows throughout the community, border to border. In this situation, the survey should be conducted from the downstream border of the stream and then walked upstream to the other border of the community.
 - The stream where it leaves the community will be numbered as either a 0000, 1000, 2000, 3000 etc, depending on how many communities that stream passes through before it either enters another major river or Lake Erie. If it only travels through one more community, then it would start at 1000.
 - Once the first outfall is located, either starting at 0000, 1000, 2000, etc, the next outfall number should go in sequences of 10's. This allows for the addition of future outfall locations between existing ones. This can occur with new construction or if one outfall was missed during the initial field survey.

For additional examples, please refer to the IDDE Outfall Database – Outfall Identification and Stream Naming Convention document in Appendix A.

Once in the waterbody, the survey crew will walk or boat until they come upon a MS4 outfall location. When the outfall is located, the survey crew will perform the following for the outfall location:

- Take a photograph of the outfall and indicate the number of the photo on the survey form.
- Take GPS coordinates of the outfall – important in the mapping of the outfall locations. The GPS coordinates can be exported to different mapping systems that can plot these points on a map of the community.
- Fill out the necessary information on the field form (see Appendix B for example of field form), including
 - Date
 - Observer
 - Community
 - Waterbody
 - Watershed / Subwatershed
 - Location (address if possible, street name, etc)
 - Latitude and Longitude
 - Elevation
 - Side of stream the outfall is located on (river left, river right – always face downstream when determining the side of the water body the outfall is on for consistency)



Figure 9: Measuring size of outfall

- Shape of outfall
 - Circular
 - Elliptical
 - Egg
 - Rectangular
 - Other
- Outfall Material
 - RCP (Reinforced Concrete Pipe)
 - CMP (Corrugated Metal Pipe)
 - VCP (Vitrified Clay Pipe)
 - PVC (Polyvinyl Chloride Pipe)
 - Other
- Size of outfall
- Condition of outfall
 - Good
 - Fair
 - Poor
 - N/A
- Measurement of bottom of outfall to the top of the waterbody level, in feet
- Type of outfall
 - MS4
 - Other
 - Unknown
 - Household septic discharge
 - Commercial septic discharge
- Observe any noticeable pollution condition or other observances that may indicate possible illicit discharges that may be emanating from this outfall.

Note:

It is always desirable to perform dry weather inspections and sampling at the same time as the field survey. However, due to the weather conditions in Ohio and the number of days that we have dry weather (minimum 72 hours of no rainfall over 0.1 inches); it is necessary to perform the field surveys whenever possible and then to follow-up with dry weather inspections and sampling at a later date. Once the outfalls have been identified and mapped, it is easier to perform dry weather inspections and sampling because the locations are now mapped and easier to locate.

Figures 10: Example of Outfall Materials

RCP (Reinforced Concrete Pipe)



CMP (Corrugated Metal Pipe)



VCP (Vitrified Clay Pipe)



PVC (Polyvinyl Chloride Pipe)



Chapter 3: Inspection and Developing Priority Areas

Another mandatory requirement of a Phase II IDDE program is to “develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, to your system”. EPA recommends that this plan include the following components:

1. Locate priority areas within your community
2. Trace the source of an illicit discharge
3. Remove the source of the illicit discharge
4. Program evaluation and assessment

Locating priority areas within your community will be the focus of this chapter. The remaining components will be focused in the following chapters.

Developing Priority Areas is vital to any community IDDE program. This process can be broken down into three fundamental steps:

1. Use all available information to identify the potential hot spots of the community
2. Conduct dry weather field screenings to locate non-storm water discharges
3. Conduct water quality sampling and analysis to determine what non-storm water discharges are present.

Hot Spots

The first step in locating priority areas is to identify possible hot spots within your community. These hot spots are areas where there is a potential for illicit discharges to occur. These can be broken down into a list of commonly high probability locations where illicit discharges may be occurring.

1. Locations where there have been repeated problems in the past. This includes

locations with known water quality data, as well as locations where numerous complaints have been received. These areas should be known by community officials as well as other agencies that collaborate on specific problem areas. For example: the Northeast Ohio Regional Sewer District (NEORSDD) works on many sanitary sewer problems that can impact an MS4 within a community. The NEORSDD would be an agency that should be contacted for such information. Likewise, the local health department, EPA office,

Figure 11: MS4 outfall location with illicit discharge



county engineer, municipal engineer or a variety of other agencies should be contacted when compiling this information.

2. Older areas of a community may indicate possible locations where there will be illicit discharges detected. These locations in a community may have a higher percentage of illegal connections and/or have deteriorating sewer lines leading to infiltration problems from the older infrastructure found in that area.
3. The commercial and/or industrial areas of the community will tend to have a higher percentage of illicit discharges as well. Historically, these locations have significant numbers of illegal connections and have discharges with a high potential to affect water quality (Tuomari, 1999 and Pitt et al., 1993).

Detection / Inspections

Once the community has established their list of priority areas, then inspections must be conducted on all of the community's known MS4 outfall locations. Dry weather inspections are the required inspection protocol that communities must perform on their MS4 outfall locations. Dry weather inspections are a visual inspection of the outfall location. Dry weather is defined as a minimum of 72 hours of no rainfall (0.1") within an area. During this type of visual inspection, there are a number of recommendations required to perform an effective dry weather screening process.



Figure 12: Dry weather field inspection

- Always notify the public during any field component of your IDDE program. Examples include letters/postcards to residents, community webpage and community newsletters. As mentioned in the mapping chapter, it is important that the public is very aware of what is occurring in a community and keeping them informed of what is occurring will benefit the IDDE program. A better informed citizenry may assist in finding an illegal discharger, as well as helping with the educational component of the program.
- As mentioned in the previous chapter, safety in the field is vital. Typical surveys should always be done with two field staff (if available). Remember, like the mapping component, during the field investigations there will be remote areas that the field staff will be inspecting. If injury occurs, the extra field staff is a necessity. Also be aware of the locations where field inspections will occur because specific locations may present specific sources for safety concerns.

- Utilize the information that you obtained from your mapping component. Print out completed inventory forms, inspection forms and a map indicating where the outfalls are and have them numbered on this map. This will allow for ease of locating known MS4 outfall locations. The field form will have the photo of the outfall, location of the outfall, side of stream, etc. This information is imperative when in the field. When the field staff finds the outfall, it is important to know which outfall is being inspected.
- During this visual inspection, fill out the field inspection form. The following is a list of observations needed for this component, and are listed on the field format:
 - Outfall number
 - Date
 - Time
 - Crew staff
 - Time of last rain
 - Pipe flow (none, <1/4 pipe, <1/2/ pipe, etc)
 - Comment section for:
 - Odor, color, turbidity, floatable matter

The above information is for dry weather visual inspections only. The field form also encompasses a sampling section for water quality sampling work that is conducted on an outfall.

Physical Indicators

As mentioned above, during dry weather visual inspections, it is important to indicate the conditions observed at an outfall location. This includes: flow, odor, color, turbidity and if floatables are present at the location. The information that you obtain from the physical characteristics observed are indicators and cannot be fully relied upon by themselves. Floatables are the best physical indicator. Floatables can consist of sewage, suds, and oil sheens. These are the most common. The observation of sewage at an outfall location indicates that there is a severe problem with that MS4 and should be looked at as to where the source for the sewage is emanating from. Suds can indicate a variety of things. Some suds are naturally formed by the movement of the water. If the suds are located at a water drop off and break up quickly, this may only be water turbulence related. If the suds have a fragrant odor, this can indicate the presence of laundry water or wash water in the waterbody. Oil sheens need to be looked at to try and determine the source of the oil sheen. Some oil sheens are common and occur naturally by in-stream processes. This occurs when an iron bacteria forms a sheet-like film. This can be determined by looking at the sheen and seeing if it cracks when disturbed. Synthetic oil sheens, on the other hand, will swirl when disturbed. If this occurs, then the sheen is from an oil source.

Remember, when dry weather flows are observed at an outfall, the flow is considered non-storm water related. This flow can be an illicit discharge, but it may also be a flow being generated from another action that is not considered illicit (refer to chapter 1). Likewise, if no flow is observed at an outfall, it does not mean that there is no problem at that specific outfall. In chapter 1, different types of illicit discharges (continuous, intermittent and transitory) were discussed. The continuous flows are the easiest to locate. The other two are not. That is why it is important to observe the area at each outfall's location for any type of observable pollution problem that may be the result of a transitory or intermittent illicit discharge.

It is extremely important for IDDE program managers to recognize that during field inspections, the outfall is observed as a snapshot in time. An effective IDDE program utilizes long term dry weather inspections. This involves regular inspections of outfalls in a community. These inspections will be consistent with the aforementioned protocol. The inspections can be done once a year but on a continuous basis over time. This will ensure that each outfall is being monitored routinely and that if changes occur at that location, action can then be implemented.

Water Quality Sampling and Testing

An effective IDDE program will utilize water quality sampling and testing as a tool. When dry-weather flows are observed, it will be difficult to determine if there is a problem with that flow. Obvious problems, such as strong sewage odor, or the presence of raw sewage or toilet paper, will indicate that there is a bacterial problem at that location emanating from sanitary sewers, cross connections or septic systems. However, in most circumstances, water that is observed during dry weather conditions will not have those visual clues. That is why water quality testing and sampling is a vital component for an IDDE program.

Certain water quality parameters can serve as indicators of the likely presence or absence of a specific type of discharge. Some of these parameters can be measured in the field with specific instrumentation and field sample kits, while still others will need to be analyzed at a laboratory.



There are a large number of water quality parameters that can be measured in an IDDE program. The most commonly used and useful parameters are summarized in Table 3-1, which focuses on those parameters suggested in Pitt et al. (1993), the New England Interstate Water Pollution Control IDDE Manual and the EPA's Phase II regulations.

Figure 13: Taking a water sample at an MS4 outfall location during dry weather flow.

Table 3-1: Water Quality Test Parameters And Uses		
Water Quality Test	Use of Water Quality Test	Comments
Conductivity	Used as an indicator of dissolved solids	- Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter - Typically measured in the field with a probe
Bacteria (fecal coliform, <i>E. coli</i> and/or <i>enterococci</i>)	Used to indicate the presence of sanitary wastewater	- Used by NHDES
Ammonia	High levels can be an indicator of the presence of sanitary wastewater	- Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter
Surfactants	Indicate the presence of detergent (e.g., laundry, car washing)	- Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter
pH	Extreme pH values (low or high) may indicate commercial or industrial flows; not useful in determining the presence of sanitary wastewater (which, like uncontaminated base flows, tends to have a neutral pH, i.e., close to 7)	- Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter - Typically measured in the field or lab with a probe
Temperature	Sanitary wastewater and industrial cooling water can substantially influence outfall discharge temperatures. This measurement is most useful during cold weather.	- Pitt et al. 1993 suggested parameter - Measured in the field with a thermometer or probe
Hardness	Used to distinguish between natural and treated waters	- Pitt et al. 1993 suggested parameter
Total Chlorine	Used to indicate inflow from potable water sources; not a good indicator of sanitary wastewater because chlorine will not exist in a "free" state in water for long	- Pitt et al. 1993 suggested parameter
Fluoride	Used to indicate potable water sources in areas where water supplies are fluoridated	- Pitt et al. 1993 suggested parameter
Potassium	High levels may indicate the presence of sanitary wastewater	- Pitt et al. 1993 suggested parameter
Optical Brighteners (Fluorescence)	Used to indicate presence of laundry detergents (which often contain fabric whiteners, which cause substantial fluorescence)	-Pitt et al. 1993 suggested parameter -Used by City of Winooski, VT
Dissolved Oxygen	Low DO can indicate sewage problem	-Toth, Lake County Health
Phosphorus	High phosphorus can indicate sewage and/or possible illegal gray water connections	-Toth, Lake County Health

Source: Table Modified from *Illicit Discharge Detection and Elimination Manual: A Handbook for Municipalities*, New England Interstate Water Pollution Control Commission

The above table indicates that there are a number of water quality parameters that can be used to look for specific problems in communities. When deciding on what water quality parameters to use, the IDDE program manager must be aware of the community makeup and the possible sources of illicit discharges as well as how much money is available to complete water quality sampling. It is not necessary to do lab analysis on every sample. It is very possible to operate a successful IDDE program on a shoestring budget. That is why developing a priority list and hot spot locations are very important in determining the specific parameters to test for.

When developing your IDDE program protocol for sampling, it is important to have a monitoring plan in place. This can be utilization of Standard Methods reference documents as well as a Quality Assurance Management Plan (QAMP). An example QAMP is included in the appendix. This was designed utilizing the US EPA QAMP model documents available at: <http://www.epa.gov/quality/qmps.html>. These plans will provide for proper quality assurance and quality control of proper sampling procedures. This will be important to validate your data. This will include proper calibration of field equipment and meters, how to properly take samples and keep them cold for the proper amount of time until delivered to the lab, and it will indicate how you will ensure the samples are valid (field blanks and replicate samples).

Also, it is important to take into account the resources that a community has and what they can allow for the IDDE sampling portion of their program. During the sampling phase, utilizing a meter to obtain some of this information is a worthwhile endeavor. There are a series of meters that can be used for temperature, pH, and conductivity. The lab analysis of samples is where there can be a high cost for communities. When determining what you want to sample for, look at the community as a whole and what are the problems of that specific community. In many circumstances, the problems lay with infrastructure, where you have older sanitary and storm sewer lines and there are infiltration problems from the sanitary to the storm sewer. In most cases, the first sampling parameter should be for bacteria. Fecal coliform is an indicator organism found in the intestines of warm blooded mammals. When it is found in high quantities, this is an indicator of a bacterial problem.

The dry weather inspections and the water quality testing will provide valuable information for an effective IDDE program. By establishing a consistent protocol in these inspection strategies, the community will acquire data that is necessary in order to have an effective IDDE program. By performing long term dry weather inspections, a long term protocol will be set in place to view MS4 outfalls and ensure they are not discharging pollutants into the surface waters of the state. Likewise, the sampling component will provide valuable data for communities' IDDE programs.

Sampling is a vital component and communities need to start addressing this component sooner rather than later. By starting a sampling protocol and continuing this protocol on a yearly basis, the community will develop baseline data as to their outfall discharges. It will allow the communities to efficiently work on problem areas by directing their resources wisely by utilizing the sampling data. It will also allow communities to look at their MS4s over a long period of time to observe improvements in problem areas.

There is no single indicator parameter that is perfect. Table 3-2 summarizes the parameters that meet most of the indicator criteria, compares their ability to detect different flow types, and reviews some of the challenges that may be encountered when measuring them.

“The Data in Table 3-2 are based on research by Pitt conducted in Alabama, and therefore, the percentages shown to distinguish “hits” for specific flow types should be viewed as representative and may shift for each community. Also, in some instances, indicator parameters were “downgraded” to account for regional variation or dilution effects. For example, both color and turbidity are excellent indicators of sewage based on discharge fingerprint data, but both can vary regionally depending on the composition of clean groundwater.” (Center for Watershed Protection and Pitt, 2004)

Table 3-2: Indicator Parameters Used to Detect Illicit Discharges
Discharge Types It Can Detect

Parameter	Sewage	Wash water	Tap Water	Industrial or Commercial Liquid Wastes	Laboratory/Analytical Challenges
Ammonia	#	*	x	*	Can change into other nitrogen forms as the flow travels to the outfall
Boron	*	*	x	N/A	
Chlorine	x	x	x	*	High Chlorine demand in natural waters limits utility to flows with very high chlorine concentrations
Color	*	*	x	*	
Conductivity	*	*	x	*	Ineffective in saline waters
Detergents-Surfactants	#	#	x	*	Reagent is a hazardous waste
E. coli Enterococci Total Coliform	*	x	x	x	24-hour wait for results. Need to modify standard monitoring protocols to measure high bacteria concentrations
Fluoride ¹	x	x	#	*	Reagent is a hazardous waste exception for communities that do not fluoridate their tap water
Hardness	*	*	*	*	
pH	x	*	x	*	
Potassium	*	x	x	#	May need to use two separate analytical techniques, depending on the concentration
Turbidity	*	*	x	*	

Can almost always (>80% of samples) distinguish this discharge from clean flow types (e.g., tap water or natural water). For tap water can distinguish from natural water.

* Can sometime (>50% of samples) distinguish this discharge from clean flow types depending on regional characteristics, or can be helpful in combination with another parameter

x Poor indicator. Cannot reliably detect illicit discharges, or cannot detect tap water.

N/A Data are not available to assess the utility of this parameter for this purpose.

Data Source: Pitt (this study)

¹ Fluoride is a poor indicator when used as a single parameter, but when combined with additional parameter (such as detergent, ammonia and potassium), it can almost always distinguish between sewage and wash water.

SOURCE: *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection

Quality Assurance Management Plans and Project Plans (QAMP/QAPP)

Appendix D has information on the development of a QAMP or QAPP. These plans are extremely important in ensuring that when water samples are obtained, that there is a consistent and approved protocol used. This is to ensure that the data you collect is accurate. This should include where to collect samples, when to collect, how to collect, calibration of equipment (meters), storage of samples, chain of custody, and transportation of samples to lab. It is best to develop your QAMP/QAPP by utilizing organizations that have experience in this type of quality control processes. This can include EPA, local health departments, and sewer districts. It is also important to have all field staff properly trained for sample collecting.

Equipment for Water Sampling

When performing water quality sampling, it is important to have adequate equipment. This includes, but not limited to:

- Cooler
- Ice
- Bottles: These will depend on the parameter being sampled for. The lab that you utilize for analysis may provide you the bottle that is required. Keep bottles in a safe environment to prevent cross contamination from occurring.
- Labels for bottles: In many circumstances, the lab will have the bottles pre-labeled. If not, get the labels that the lab recommends for labeling the bottles.
- Permanent marker for bottles
- Field forms
- Latex gloves
- Meters: depends on what parameters and what type of meter purchased for use.
- Test kits

Whenever a water sample is taken at an MS4 outfall location, fill out the inspection form from Appendix C and make sure the time of sample is indicated. This is important when delivering samples to the lab. It is not recommended to try and analyze the samples yourself, unless you have a lab available. It is better to use a lab that has a QA/QC policy in place and one that routinely performs this type of analysis for consistency purposes.

Special Monitoring

Some of the monitoring that will be required will involve different techniques. If an outfall location shows physical signs of a problem, but no flow is observed, then that illicit discharge is either an intermittent or transitory discharge. These do not flow continuously and may be difficult to observe.

Once an outfall is determined to have a possible illicit discharge associated with it and no flow is observed, then an alternate inspection and sampling program must be used. This can include the following:

Odd hours of monitoring: Perform inspections either later in the evening or early morning hours or on the weekends. Since many types of intermittent discharges probably occur when households are home, then the inspection needs to be performed during these times as well. Make sure that if samples will be collected during odd times, the lab needs to be notified to ensure they can accept and analyze the sample since there are specific holding times for each type of parameter.

Sampling at the outfall plunge pool: A sample would be collected directly from the plunge pool below the outfall, if one is present. An upstream sample will also be taken to compare the results. This can be affected by dilution and time so it is not always that accurate and effective.

Chapter 4: Tracing For the Source of an Illicit Discharge

Once an illicit discharge has been identified and detected, the next step is to locate the source of that discharge. The development of a plan to locate and address illicit discharges is required under the Phase II Storm Water Rules. “EPA recommends that the plan include the following five components:”

1. Locate the priority areas
2. Sample or screen the outfall
3. Trace the source of an illicit discharge
4. Remove the source of the illicit discharge
5. Program evaluation and assessment

The information that is received from the mapping and the inspection protocols established by a community will be valuable in this component (see previous chapters). During the inspection process, illicit discharges may be located and detected. Once these outfall locations are determined to have an illicit discharge, then the community must start its tracing protocol to determine where the source of the illicit discharge is emanating from. Once located, this discharge needs to be eliminated from the community’s MS4 system.

Tracing Techniques

There are a number of different techniques that can be utilized to trace for an illicit discharge. Each technique listed must be fully understood and their limitations must be understood as well.

Visual Inspections/Manholes and Storm Drain Network

Figure 14: Removing storm drain lid



Once a dry weather flow is observed and it has been determined to be an illicit discharge, a key tracing technique involves dry weather inspections along the specific MS4 conveyance system. Typically, if the conveyance system is an open ditch, this is an easier process than if it was within an enclosed storm drain network. The inspection process utilizing this method needs to start at the initial detection location (the MS4 outfall where the illicit discharge has been observed and noted). The next step is to work “upstream” from this location – that is moving up the storm drainage system to the first manhole. Check this manhole to see if there is evidence of flow. You may wish to sample each manhole, but looking for flow, since the flow has already been determined to have an illicit discharge, it is the more cost effective and faster method suggested. If flow is observed at

this manhole, move to the next upstream manhole. Keep moving upstream until no flow or low flow is observed. Keep in mind that as you move upstream, there may be junction lines entering that main storm drainage system at other locations. Utilize the storm drainage maps for the community to determine if this is the case. In these circumstances, you will need to check these manholes as well.

During this inspection process, key observations are necessary, including:

- Presence of flow
- Odors
- Colors/clarity
- Stains or deposits on bottom of structure
- Oil sheen, scum or foam on any standing water

During this process, sampling can be utilized to assist in this tracing process. Once areas are determined to have possible illicit source flows, sampling these individual locations and manholes can assist in directing where the source of the illicit discharge is located. Specific parameters can be used when looking for the illicit discharge. Refer to Chapter 3, Table 3-1 for sample parameters that can be used for specific sources of illicit discharges. Typically, you will use the same parameter that was used when the initial sample was taken to determine if an illicit discharge was present at that flow.

Dye Testing

Once the area has been determined where the potential illicit discharge source is located, the utilization of dye testing will assist in determining the exact location of the illicit discharge. Permission is required on private property prior to starting a dye test procedure. Access to the building is required. Once permission is granted, the dye testing will begin. Note: before any dye test is conducted, it is a good idea to notify the appropriate district office of the Ohio EPA Division of Emergency and Remedial Response

that a dye test is being conducted as well as the local community fire department and other community personnel. The dye needs to be put into the suspect location. This is done by pouring the dye into sinks, toilets, etc and then flushed through the drainage system. The storm drains and sanitary sewers need to be monitored to observe where the dye discharges to. This procedure is effective in determining direct connections of sanitary lines to storm lines.

Figure 15: Dye at outfall location



Televising/Video Inspection

Another method in determining where the illicit discharge source is located once an area has been determined to contain the discharge, is televising the storm line. Video cameras can be used by either pushing or using a mobile video unit. Both cameras will provide detailed information as to where the infiltration or connection is located within the MS4 system.

Indicator Monitoring / Sampling

When dry weather flow is observed at an outfall location, and the sample reveals that there is a problem with this flow, further monitoring can be done to assist in the location of the illicit discharge. As manholes are opened and dry weather flow is observed, samples can be taken and analyzed. During this process, we are looking for a pattern within the sample analysis, depending on the parameter sampled for. During this type of tracing, the monitoring will allow the field crew to determine if the dry weather flow observed is the source of the flow at the outfall location. There can be circumstances where dry weather flow occurs and it is not “illicit” due to its source (drinking water line break, fire hydrant flushing, etc: refer to Chapter 1: Does This Measure Need to Address All Illicit Discharges?). This flow can combine with an illicit source in the storm drainage system making it difficult to trace. By monitoring the water observed, it will assist in the tracing of the illicit source discharging into the storm drainage system.

Automatic Samplers can also be used during the investigation of intermittent flows. These samplers can be placed at specific locations within the storm drainage system of a community. These samplers can be triggered by dry weather flows. This type of sampling and monitoring is not the best method for most communities due to the cost of the sampling equipment. This type of monitoring can be effective however, in areas with a large intermittent discharge problem and a very complex storm drainage system. These samplers will provide the date and time the sample was collected which will assist the community in locating the source of this discharge.

Smoke Testing

This method should be used during special circumstances when a good storm sewer map is not available for a location and there are known problems of connection issues. Smoke is introduced into the storm drainage system and will emerge at locations that are connected to that system. It is recommended that qualified personnel be used for this method to ensure accurate test results.

“Notifying the public about the date and purpose of smoke testing before starting is critical. The smoke used is non-toxic, but can cause respiratory irritation, which can be a problem for some residents. Residents should be notified one week prior to testing, and should be provided the following information” (Hurco Technologies, Inc., 2003):

- Date testing will occur and reason for smoke testing
- Precautions they can take to prevent smoke from entering their homes or businesses
- What they need to do if smoke enters their home or business, and any health concerns associated with the smoke
- A number residents can call to relay any particular health concerns (e.g., chronic respiratory problems)

Optical Brightener Monitoring (OBM) Traps

OBM traps can be used to assist in tracing intermittent flows that result from wash water with detergent. Detergents contain optical brighteners that can be detected at high concentrations. However, this method usually only picks up highly concentrated discharges. The OBM method may be used as a simple indicator for the presence or absence of intermittent flows or to detect the most concentrated flows.

These traps usually contain unbleached cotton pads or a fabric swatch placed inside of a wire mesh trap. These traps are anchored inside of an outfall using wire that is secured to the pipe itself. Rocks can also be used to hold the trap in place.

These traps will be retrieved after 24-48 hours of dry weather. They need to be removed prior to having contact with storm water. When placed under a fluorescent light, an OBM trap will indicate if it has been exposed to detergents. (Guidelines for SOP, 2-13).

Chapter 5: Elimination of an Illicit Discharge

Developing and implementing an effective IDDE program requires the successful removal of an illicit discharge once located. Under the Ohio EPA Phase II rules, you must “to the extent allowable under law, effectively prohibit, through ordinance or other regulatory mechanism, non-storm water discharges into your storm sewer system and implement appropriate enforcement procedures and actions”.

There has been a model illicit discharge ordinance developed by a collaborative effort of the Chagrin River Watershed Partners, Inc., the Cuyahoga County Board of Health and the Lake County General Health District. This ordinance has been approved by the Ohio EPA and is located in Appendix E. This model ordinance allows for the regulatory mechanisms for communities to address these illicit discharges and comply with the Ohio EPA Phase II requirements.

Once an illicit discharge has been identified, communities must then determine who is responsible for the removal of the discharge. Ultimately, it is the property owner or the municipality.

- Internal Plumbing Connection: Generally, it is the building owner.
- Service Lateral: This is also generally the building owner. However, in some circumstances, communities may fix the problem and share in the cost with the building owner depending on the policy and procedures communities have developed.
- Infrastructure Failure: This type of discharge is the community’s responsibility if within the dedicated right of way.
- Transitory Discharge: Again, the building owner is responsible to correct.
- Educating residents on habits (illegal dumping, etc).

Typically, the timeframe established for the repair of these illicit discharges is established within the community’s enforcement procedures. During the enforcement of these illicit discharges the communities must provide clear guidance in both their ordinance and with their direction to the responsible party for what actions need to be taken to correct the problem.

Once the removal of the illicit discharge has occurred, it must be confirmed to ensure the correction has been made. For example, this can be confirmed by dye testing internal plumbing fixtures if the source was from an internal or service lateral line source.

There are various methods that can be used to remove an illicit discharge and to fix the problem. Table 5-1 gives an overview of the technique, when to use and the description.

Table 5-1: Methods to Eliminate Discharges			
Technique	Application	Description	Estimated Cost
Service Lateral Disconnection, Reconnection	Lateral is connected to the wrong line	Lateral is disconnected and reconnected to appropriate line	\$2,500-\$5,000
Cleaning	Line is blocked or capacity diminished	Flushing (sending a high pressure water jet through the line); pigging (dragging a large rubber plug through the lines); or rodding	\$1/linear foot
Excavation and Replacement	Line is collapsed, severely blocked, significantly misaligned, or undersized	Existing pipe is removed, new pipe placed in same alignment; Existing pipe abandoned in place, replaced by new pipe in parallel alignment	For 12" line, \$100-\$150/linear foot
Manhole Repair	Decrease ponding; prevent flow of surface water into manhole; prevent groundwater infiltration	Raise frame and lid above grade; install lid inserts; grout, mortar or apply shotcrete inside the walls; install new precast manhole	Vary widely, from \$250 to raise a frame and cover to ~ \$4,000 to replace manhole
Corrosion Control Coating	Improve resistance to corrosion	Spray- or brush-on coating applied to interior of pipe.	< \$10/linear foot
Grouting	Seal leaking joints and small cracks	Seals leaking joints and small cracks.	For a 12" line, ~ \$36-\$54/linear foot
Pipe Bursting	Line is collapsed, severely blocked, or undersized	Existing pipe used as guide for inserting expansion head; expansion head increases area available for new pipe by pushing existing pipe out radially until it cracks; bursting device pulls new pipeline behind it	For 8" pipe, \$40-\$80/linear foot
Slip Lining	Pipe has numerous cracks, leaking joints, but is continuous and not misaligned	Pulling of a new pipe through the old one.	For 12" pipe, \$50-\$75 /linear foot
Fold and Formed Pipe	Pipe has numerous cracks, leaking joints	Similar to slip lining but is easier to install, uses existing manholes for insertion; a folded thermoplastic pipe is pulled into place and rounded to conform to internal diameter of existing pipe	For 8-12" pipe, \$60-\$78/linear foot
Inversion Lining	Pipe has numerous cracks, leaking joints; can be used where there are misalignments	Similar to slip lining but is easier to install, uses existing manholes for insertion; a soft resin impregnated felt tube is inserted into the pipe, inverted by filling it with air or water at one end, and cured in place.	\$75-\$125/linear foot


SOURCE: Modified from *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection, 2004

If the illicit discharge is emanating from outside of your community or jurisdiction, it is important that you notify the community where the discharge is coming from. This should be done in a letter format where you can document that it was sent. The letter should include where the illicit discharge was detected and where it was traced to by your community. Keep records of what your community did, and ask the neighboring community/jurisdiction to inform you when the correction has been made. Include all of your documentation with your annual Phase II Storm Water Report to the EPA.

Preventing Illegal Dumping

One source of illicit discharge to a community's MS4 system is illegal dumping. This is often difficult to identify and locate. Because of the potential problem that this type of discharge presents, it is important to develop an Illegal Dumping Prevention Program as part of your IDDE Program.

The US EPA has developed an *Illegal Dumping Prevention Guidebook* that provides key information and procedures in addressing this type of illicit discharge. The guidebook can be located at: <http://www.epa.gov/region5/illegaldumping/>. Strategies for preventing illegal dumping include:

- Site maintenance and controls: This includes cleaning up areas where illegal dumping has occurred and to utilize specific controls to prevent further dumping. These controls can include signage or restriction of the area.
- Targeted Enforcement: Utilization of an ordinance that prohibits illegal dumping.
- Education and Involvement: As with components I and II of the Phase II program, community outreach and involvement is vital to any successful IDDE program. This includes a variety of programs that can assist the community in meeting their requirements under this component of Phase II.
 - Educate general public, municipal employees and businesses about water quality issues and how illegal dumping has a direct impact on these water quality issues.
 - Provide for effective ways to dispose of waste
 - Provide a way for citizens to get involved in reporting and preventing illegal dumping, such as storm drain marking that indicates:
 No dumping – drains directly to lake, creek, or other water body
 - Develop materials/brochures for the public and businesses. This should include businesses that handle hazardous materials as well as restaurants, auto repair shops and others that may have an impact on possible sources of an illicit discharge.

- Develop an anonymous mechanism that can be used by the public, businesses and municipal employees to report illicit discharges.
- Create a service department self-inspection program to detect possible sources of illicit discharges and illegal connections.

Chapter 6: Evaluation of your IDDE Program

A successful IDDE Program involves a program evaluation and assessment. EPA recommends that the IDDE Program have procedures for program evaluation and assessments. IDDE programs should be evaluated at the end of each year to assess if it has been effective and most of all, efficient.

Evaluating the Program

To effectively evaluate your program, a number of questions need to be asked and analyzed.

1. Evaluate priority areas within your community:
 - a. Were these areas identified initially?
 - b. Are these areas still appropriate to be a priority area?
 - c. Have illicit discharges been located in these areas?
2. Detection Program
 - a. Is the program effective? Need to reassess the program by determining what has been achieved. Look at number of outfalls inventoried, the number visually inspected, the number that had dry weather flows and look at the overall percentages of these flows as part of your overall storm sewer system for your community.
 - b. Cost effectiveness: What aspects of the program had the highest quality of effectiveness in relationship to cost?
 - c. Number of illicit discharges detected utilizing each detection method (will assist to see what method is more effective).
3. Tracing Program
 - a. What techniques were used?
 - b. Were these methods successful?
 - c. What techniques that were not used would be beneficial for next year?
 - d. How many illicit sources were identified and eliminated?
4. Other
 - a. If using water quality sampling, resample areas within community to determine effectiveness of the removal of illicit discharges.
 - b. Determine how much time was spent by employees and expenses to determine overall cost for achieving a given result.

Establish a Tracking and Reporting System

It is important that a tracking system be developed. This system is to track, report and respond to illicit discharge problems. This tracking system enables the community to measure the IDDE program effectiveness and assists with the evaluation of the overall IDDE program.

Chapter 7: Education to Public Employees, General Public and Businesses

The Ohio EPA requires that communities must inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste. This chapter provides some suggestions as to how to provide this information to the targeted audience.

Public Employees

The Phase II Storm Water rules require that municipal employees be trained on pollution prevention techniques. This is located under minimum control measure number 6: “Pollution Prevention/Good Housekeeping for Municipal Operations”.

Part of this training can include the prevention of non-storm water discharges from entering the storm sewer system from municipal operations. Public employees can play an important role as partners in the detection and/or prevention of illicit discharges.

Service department employees can look for signs of illegal dumping in catch basins and other locations. Building inspectors can ensure that illegal connections to the storm sewer system do not take place during construction projects. Staff whose jobs keep them outside and mobile can help spot illegal dumpers. Fire and police department personnel who respond to hazardous material spills can help keep these spills out of the storm sewer system and adjacent water bodies.

General Public

The general public must be made aware and educated on environmental and water quality issues. During this outreach stage, it is important to get the public engaged and involved in the process. Some examples of what can be done by the general public include:

- ❖ Print and distribute outreach materials. This should include information on water pollution, storm water problems, what is an illicit discharge, and what the community is doing about illicit discharges.
- ❖ Develop a program to encourage the public to report illicit discharges/dumping when they are observed. This can include a dedicated “hotline” for the public to call when they observed situations that are impacting the community’s MS4 system.
- ❖ Develop citizen volunteers to conduct storm drain stenciling projects at storm drains. It is important that citizens be trained. Many local Soil and Water Conservation Districts can perform this training and assist the community in public involvement activities. All volunteers should sign a liability form.
- ❖ The community should develop a household hazardous waste disposal/recycling program. This can be done in conjunction with other communities or coordinated through the County Solid Waste Management District.

Businesses

It is also important to educate local businesses to show how they can have an impact on water pollution. Here are some steps you can take to reach out to businesses.

- ❖ Develop a brochure and/or presentations to inform businesses about water pollution, storm water and illicit discharges. It is important to have partners assist on this project including the local Chamber of Commerce.
- ❖ Provide contractors and developers information on illegal connections.

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Appendix A

IDDE Outfall Database - Outfall Identification and Stream Naming Convention

IDDE Outfall Database - Outfall Identification and Stream Naming Convention

Background

The naming system used for identifying outfalls in the NEORSRD historical outfall dataset was used as the basis for the IDDE Outfall Database. This system was developed over the course of several years and several different projects. The resulting naming conventions only addressed the streams within a particular study area and did not give consideration to a more globally applicable stream naming system.

As these data sets were incorporated into a comprehensive set, considerations were taken in developing a scheme to make the outfall identification numbers more consistent. It became apparent, however, that as users continued to survey more streams and tributaries, it would be necessary to develop a more flexible naming convention, with the ability to handle multiple unnamed tributaries and duplicate names.

As the number of users of the database in Northeast Ohio continues to grow, additional difficulties with the current outfall numbering system will continue to emerge. Already we have encountered instances of common stream names which are used in more than one drainage area and rural drainage systems in which fourth and even fifth order tributaries are not uncommon. So far, this outfall identification system has been able to accommodate these special cases, but such a system is inherently limited. Future expansion of the database may require a more standardized naming system, something along the lines of the stream segment numbering system used by Ohio EPA.

Stream Codes:

1) Main Branches

Technically only first order streams, that is streams and rivers draining directly into Lake Erie, should be designated as Main Branches. In Northeast Ohio, this includes the Rocky River, Cuyahoga River, Chagrin River, and so forth. However, due to the amount of data collected for many second and third order streams, and the significant number of their tributaries, a number of these were included as Main Branches as well. Examples of Northeast Ohio tributaries designated as Main Branches in the database are Blodgett Creek (tributary of Rocky River), Chippewa Creek (tributary of Cuyahoga River), and Chevy Branch (tributary of Big Creek, itself a tributary of the Cuyahoga River).

The first two characters of the outfall identification number designate the Main Branch to which an outfall is tributary. A list of these two-character codes developed for Northeast Ohio communities and thus far assigned can be found in the Stream Designation Spreadsheet. Letters of the alphabet were used to logically approximate stream names, however, in cases where large numbers of streams have names consisting of similar letters (for example, stream names beginning with B and consisting of A's, K's, L's; see Black, Baker, Blodgett, etc.), referring to the codes in the spreadsheet is strongly advised.

The second two characters of the outfall identification number indicate whether the stream described by the first two characters is a Main Branch or a Tributary. If the stream is a Main Branch, that is, if the outfall in question is actually located on the stream designated by the first two characters, the second two characters will be designated as MB.

2) Tributary Streams

In the outfall identification system described in this document, a tributary stream is any stream designated by the second two characters of the four-character stream code, with the exception of MB, and tributary to the stream designated by the first two characters of the code. This includes secondary and tertiary tributaries as well, and is not limited only to streams that flow directly into the primarily designated stream. For example, if Cook Run is designated as a Main Branch or primary stream (Code = COMB) and a tributary flowing directly into Cook Run is designated Tributary 1 (Code = COT1), another tributary flowing into Tributary 1 may be designated Tributary 2 and coded in a similar way to Tributary 1 (Code = COT2), (Figure 1).

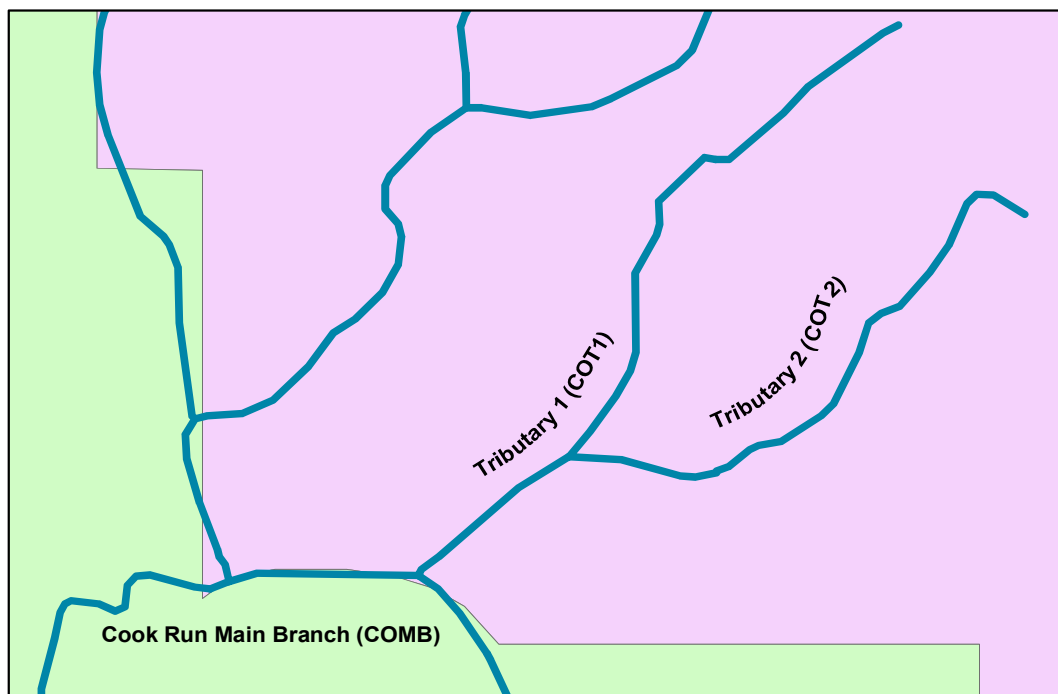


Figure 1 – Any tributary can be designated by the second two characters of the outfall identification number, including secondary and tertiary tributaries.

Some examples (*Figure 2*) of how tributaries can be coded:

- Commonly-used names (Riley Ditch, tributary to the previously used example of Cook Run, would be CORD);
- Generic tributary numbers (Tributary 1, Tributary 2, etc., tributary to Cook Run would be COT1, COT2, etc.);
- Other logical designations (North Tributary, Upper Tributary, etc., would be CONT, COUT, etc.).

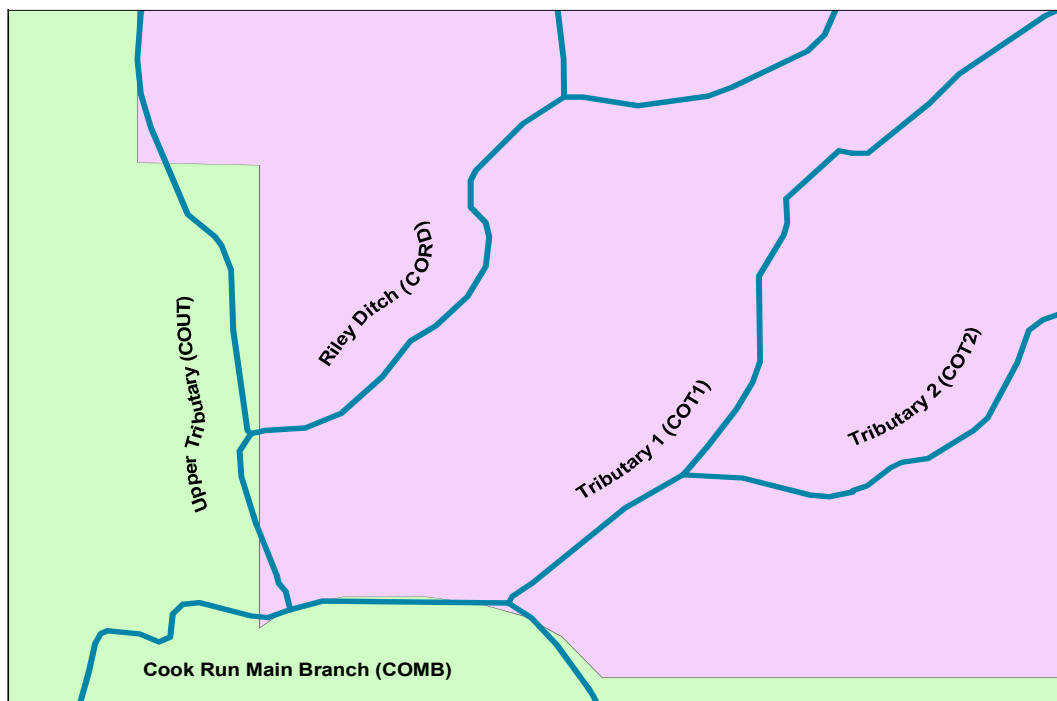


Figure 2 – Examples of how secondary and tertiary tributaries can be named, numbered and coded.

3) Special Cases

a) Multiple Main Branch Streams with Identical Names

Numerous situations have already been encountered where a stream name has been found to be used in more than one geographical area. As expected, many stream names are not unique and can be encountered repeatedly even within a relatively small area. So far, within the northeast Ohio area we have seen two cases of streams named Wolf Creek and three cases of streams named Plum Creek. In cases where the multiple names are tributaries of different Main

Branches, there is no need for different codes, since the outfall identification number will indicate both the tributary name and the main branch name, resulting in a unique combination. In the case where duplicate-name streams are designated as Main Branches, however, it is important to differentiate them with a unique stream code for each. As an example, each of the three Plum Creeks have been given a different stream code (P1, P2 and P3).

b) Streams Passing Through Multiple Communities

Streams that flow through multiple communities are each assigned a reserved range of numbers for outfall identification. These ranges are further discussed below in the section on Numbering.

c) Streams Forming Community Boundaries

Streams that form a boundary between communities along all or part of their length create a special challenge in devising a logical outfall identification system. Because each community is required to assign numbers to outfalls along one side of the stream with no knowledge of the numbers being used on the other side, the outfall numbers would inevitably be out of order and/or duplicated for the subject stream. To eliminate potential problems, sections of streams that form community boundaries have been assigned dual designations, either North/South or East/West depending on the general orientation of the stream segment. For example, the segment of Doan Brook Main Branch that forms the boundary between Cleveland and Cleveland Heights, and farther upstream, Shaker Heights and Cleveland Heights, has been designated Doan Brook North Shore (DBNS) and Doan Brook South Shore (DBSS). The segments of Doan Brook which are entirely within Cleveland and entirely within Shaker Heights are designated Doan Brook Main Branch (DBMB), (*Figure 3*).

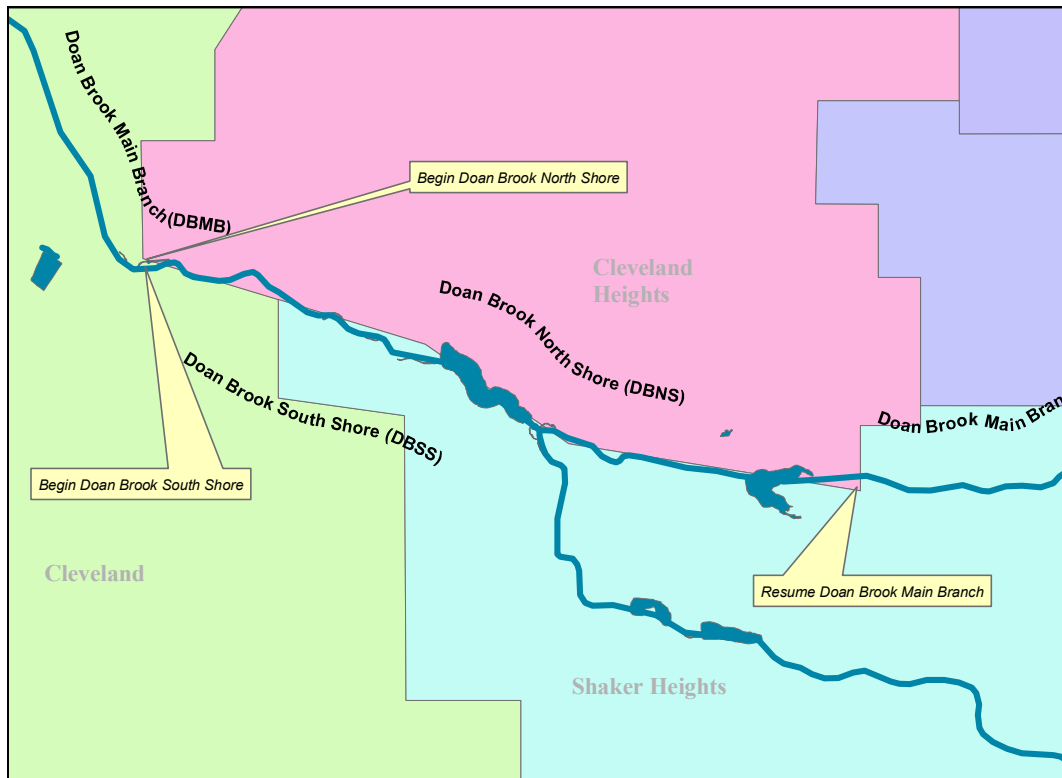


Figure 3 – Example of stream segment designations for streams that form community boundaries.

Numbering:

1) General

In addition to the four-character stream designation, each outfall identification number also consists of a four-digit numerical code beginning with 0000 at the confluence of the stream and initially proceeding by increments of 10 while moving upstream. Using increments of 10 allows for the later addition of outfalls which may have escaped observation in earlier surveys or outfalls from new construction and development, while maintaining order of numbering.

2) Culverted Outfalls

Occasionally, in sections where a stream is culverted, a ninth character (c) is added to the end of the outfall identification number to denote that the outfall is in a culvert. For example, KRMB0280c is an outfall in the culverted section of the Kingsbury Run Main Branch.

Sometimes such an identification number is assigned to a culverted stream section where individual outfalls cannot be surveyed, due to the inability to meet confined space entry requirements. Later, individual outfalls can be assigned numbers within the range of the culverted section.

For example, a culverted portion of Nine Mile Creek Main Branch could temporarily be assigned the identification number NMMB1650c. Later, after a confined entry inspection is performed and three outfalls are found within the section, the identification numbers NMMB1650c, NMMB1653c and NMMB1656c could be reassigned to the specific outfalls. The final character (c) should continue to be used for these individual outfalls to indicate that they are located within a culverted stream section.

3) Reserved Number Ranges for Streams Passing Through Multiple Communities

When a stream consecutively flows through two or more communities, a problem arises in coordinating the numbers assigned to outfalls, especially when a survey is begun in a community before a downstream community's surveying is completed. For this reason, specific number ranges have been assigned to each community through which a stream flows, beginning at the confluence. Generally, outfall number ranges are reserved in blocks of 1000. Although a stream may only flow through a community for a very short distance, and the total number of outfalls in this segment may be small, say three, numbers in the next upstream community should begin with a new block of 1000 in order to maintain consistency and avoid duplicate outfall identification numbers.

For example, Such'n'Such Creek begins in Community X, then flows into Community Y and finally flows into the Cuyahoga River in Community Z. Therefore, Community Z will number its outfalls along Such'n'Such Creek beginning with SSMB0000 and end with an outfall identification number no greater than SSMB0999. Community Y will use outfall identification numbers in the range SSMB1000 to SSMB1999 and, Community X, SSMB2000 to SSMB2999. If Community Y only has two outfalls, they will be numbered SSMN1000 and SSMB 1010, and Community X will begin numbering their outfalls with SSMB2000. Using this system, a user quickly scanning a merged regional database of all outfall data will be able to move upstream in an orderly manner and also determine the relative length of stream segment in each consecutive community.

4) Reserved Number Ranges for Streams Forming Community Boundaries

In cases where a different number of communities are situated along each shore or bank of a stream, and the stream forms a community boundary, communities on each side of the stream should use the system of reserved numbering blocks described under **1) General**. In most cases the point at which each community will start and stop a numbering block will have no relation to the number series being using directly across the stream by another community (*Figure 4*). In other words, although there will be numerical continuity along each shore or bank, there will likely be no numerical logic for the entire stream. The system does, however, prevent duplication of outfall identification numbers.

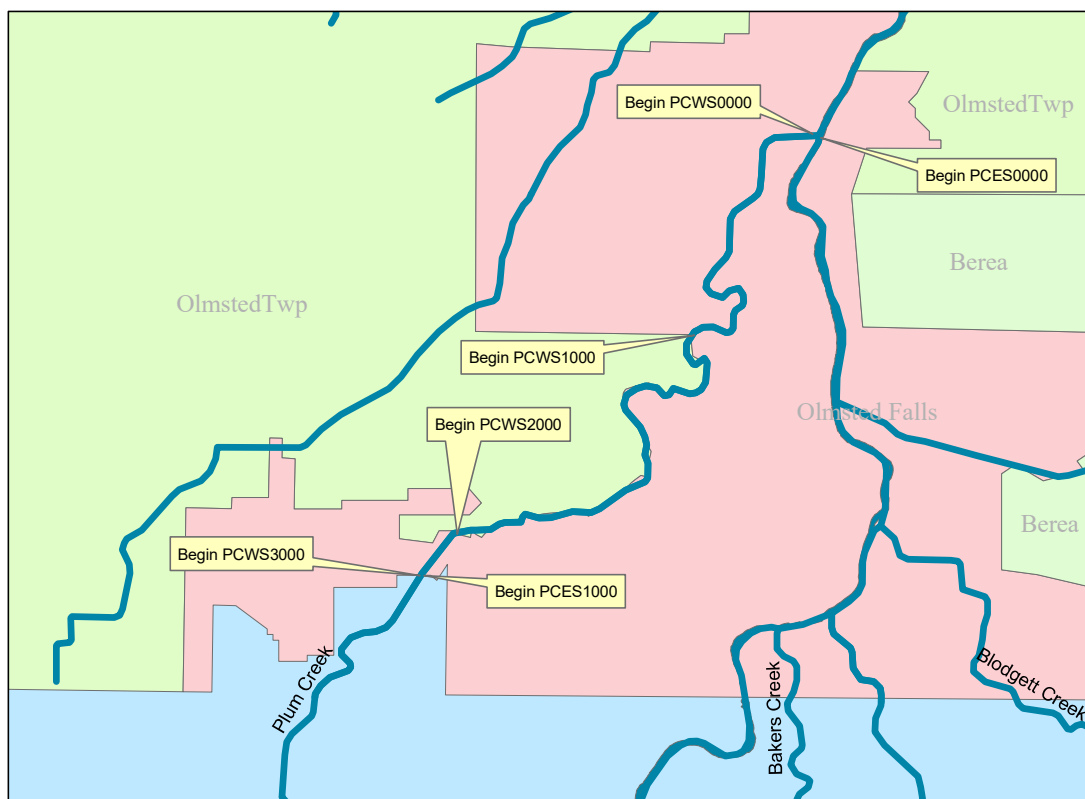


Figure 4 – Example of reserved numbering ranges for Plum Creek West Shore (PCWS) and Plum Creek East Shore (PCES).

Conclusions

The outfall identification scheme presented here is unlikely to describe every situation which may arise when assigning identification numbers while performing an outfall inventory. The attempt was made to cover some of the more common predicaments that arise during such an exercise. The key to developing additional naming schemes for use in cases not foreseen and covered in this guide is consistency. Also, it is important to document the method used for naming streams and numbering outfalls, including procedures for naming newly discovered, newly constructed, and newly acquired streams and outfalls.

As an example of a documentation tool, the following table is a partial summary of stream naming designations used by some communities in Northeast Ohio:

Table 1 – Partial List of Northeast Ohio Stream Designations

Stream Name	Outfall Designation Stream (XX)	Outfall Designation Tributary (YY)
Abram Creek - Main Branch	AC	MB
Abram Creek Tributary	AC	T1
Abram Creek Tributary	AC	T2
Abram Creek Tributary	AC	T3
Abram Creek Tributary	AC	T4
Abram Creek Tributary	AC	T5
Albers Creek - Main Branch	AL	MB
Bakers Creek – Main Branch	BK	MB
Bakers Creek Tributary	BK	T1
Bakers Creek Tributary	BK	T2
Bakers Creek Tributary	BK	T3
Bakers Creek Tributary	BK	T4
Bakers Creek Tributary	BK	T5
Baldwin Creek – Main Branch	BC	MB
Baldwin Creek Tributary	BC	T1
Baldwin Creek Tributary	BC	T2
Baldwin Creek Tributary	BC	T3
Baldwin Creek Tributary	BC	T4
Baldwin Creek Tributary	BC	T5
Baldwin Creek Tributary	BC	T6
Baldwin Creek Tributary	BC	T7
Barberton Creek – Main Branch	BA	MB
Bear Creek – Main Branch	BE	MB
Bear Creek Tributary	BE	T1
Bear Creek Tributary	BE	T2
Bear Creek Tributary	BE	T3
Bear Creek Tributary	BE	T4
Bear Creek Tributary	BE	T5
Bear Creek Tributary	BE	T6
Bear Creek Tributary	BE	T7
Bear Creek Tributary	BE	T8
Beaver Meadows Creek - Main	BV	MB
Beechers Brook – Main Branch	BH	MB

Stream Name	Outfall Designation Stream (XX)	Outfall Designation Tributary (YY)
Big Creek - Main Branch	BG	MB
Big Creek - Chevy Branch	BG	CH
Big Creek - East Branch	BG	EB
Big Creek - East Branch Tributary	BG	E1
Big Creek - East Branch Tributary	BG	E2
Big Creek - East Branch Tributary	BG	E3
Big Creek - East Branch Tributary	BG	E4
Big Creek - East Branch Tributary	BG	E5
Big Creek - East Branch Tributary	BG	E6
Big Creek - East Branch Tributary	BG	E7
Big Creek - East Branch Tributary	BG	E8
Big Creek - West Branch	BG	WB
Big Creek - West Branch Tributary	BG	W1
Big Creek - West Branch Tributary	BG	W2
Big Creek - West Branch Tributary	BG	W3
Big Creek - Main Branch	BG	MB
Big Creek - Chevy Branch	BG	CH
Big Creek - East Branch	BG	EB
Blodgett Creek - Main Branch	BL	MB
Blodgett Creek Tributary	BL	T1
Blodgett Creek Tributary	BL	T2
Brandywine Creek - Main Branch	BR	MB
Brandywine Creek Tributary	BR	T1
Brandywine Creek Tributary	BR	T2
Brandywine Creek Tributary	BR	T3
Brandywine Creek Tributary	BR	T4
Brandywine Creek Tributary	BR	T5
Brandywine Creek Tributary	BR	T6
Brandywine Creek Tributary	BR	T7
Brandywine Creek Tributary	BR	T8
Brandywine Creek Tributary	BR	T9
Brandywine Creek Tributary	BR	10
Burke Brook - Main Branch	BB	MB
Busby Ditch - Main Branch	BD	MB
Cahoon Creek - Main Branch	CA	MB
Chagrin River - Main Branch	CH	MB
Chagrin River - Upper Forty Tributary	CH	UF

Stream Name	Outfall Designation Stream (XX)	Outfall Designation Tributary (YY)
Chagrin River - Highland Heights Tributaries	CR	HT
Chagrin River - Orange Tributaries	CR	OT
Chippewa Creek - Main Branch	CC	MB
Chippewa Creek Tributary	CC	T1
Chippewa Creek Tributary	CC	T2
Chippewa Creek Tributary	CC	T3
Chippewa Creek Tributary	CC	T4
Chippewa Creek Tributary	CC	T5
Chippewa Creek Tributary	CC	T6
Chippewa Creek Tributary	CC	T7
Chippewa Creek Tributary	CC	T8
Chippewa Creek Tributary	CC	T9
Chippewa Creek Tributary	CC	10
Chippewa Creek Tributary	CC	11
Chippewa Creek Tributary	CC	12
Chippewa Creek Tributary	CC	13
Chippewa Creek Tributary	CC	14
Coe Creek - Main Branch	CO	MB
Copley Creek - Main Branch	CP	MB
Cuyahoga River - East	CR	ES
Cuyahoga River - West	CR	WS
Doan Brook - Main Branch	DB	MB
Doan Brook - North Shoreline	DB	NS
Doan Brook - South Shoreline	DB	SS
Dugway Brook - Main Branch	DU	MB
Dugway Brook - East Branch	DU	EA
Dugway Brook - East Branch Tributary	DU	E1
Dugway Brook - East Branch Tributary	DU	E2
Dugway Brook - West Branch	DU	WE
Euclid Creek - Main Branch	EC	MB
Euclid Creek - East Branch	EC	EB
Euclid Creek - East Branch Tributary	EC	E1

Stream Name	Outfall Designation Stream (XX)	Outfall Designation Tributary (YY)
Euclid Creek - East Branch Tributary	EC	E2
Euclid Creek - East Branch Tributary	EC	E3
Euclid Creek - East Branch Tributary	EC	E4
Euclid Creek - West Branch	EC	WB
Euclid Creek - West Branch Tributary	EC	W2
Euclid Creek - West Branch Tributary	EC	W3
Euclid Creek - West Branch Tributary	EC	W4
Euclid Creek - West Branch Tributary	EC	W5
French Creek - Main Branch	FC	MB
French Creek - Lower Tributary	FC	LT
French Creek - Old French Tributary	FC	OF
Furnace Run - Main Branch	FR	MB
Furnace Run Tributary	FR	T1
Furnace Run Tributary	FR	T2
Furnace Run Tributary	FR	T3
Furnace Run Tributary	FR	T4
Furnace Run Tributary	FR	T5
Furnace Run Tributary	FR	T6
Furnace Run Tributary	FR	T7
Furnace Run Tributary	FR	T8
Green Creek - Main Branch	GC	MB
Hawthorne Creek - Main Branch	HT	MB
Hemlock Creek - Main Branch	HE	MB
Hemlock Creek Tributary	HE	T1
Hemlock Creek Tributary	HE	T2
Hemlock Creek Tributary	HE	T3
Hemlock Creek Tributary	HE	T4
Hemlock Creek Tributary	HE	T5
Hudson Run - Main Branch	HU	MB

Stream Name	Outfall Designation Stream (XX)	Outfall Designation Tributary (YY)
Hudson Run Tributary	HU	T1
Hudson Run Tributary	HU	T2
Hudson Run Tributary	HU	T3
Hudson Run Tributary	HU	T4
Hudson Run Tributary	HU	T5
Hudson Run Tributary	HU	T6
Hudson Run - Lake Dorothy	HU	LD
Indian Creek - Main Branch	IT	MB
Kingsbury Run - Main Branch	KR	MB
Lake Erie - East Shoreline	LE	ES
Lake Erie - West Shoreline	LE	WS
Little Cuyahoga River - Main Branch	LC	MB
Mill Creek - Main Branch	MC	MB
Mill Creek Orange Tributaries	MC	OT
Mill Creek Tributary	MC	T1
Mill Creek Tributary	MC	T2
Mill Creek Tributary	MC	T3
Mill Creek Tributary	MC	T4
Mill Creek Tributary	MC	T5
Mill Creek Tributary	MC	T6
Mill Creek Tributary	MC	T7
Mill Creek Tributary	MC	T8
Mill Creek Tributary	MC	T9
Mill Creek Tributary	MC	10
Mill Creek Tributary	MC	11
Mill Creek Tributary	MC	12
Mill Creek Tributary	MC	13
Mill Creek Tributary	MC	14
Mill Creek Tributary	MC	15
Mill Creek Tributary	MC	16
Mill Creek Tributary	MC	17
Mill Creek Tributary	MC	18
Mill Creek Tributary	MC	19
Mill Creek Tributary	MC	20
Mill Creek Tributary	MC	21
Mill Creek Tributary	MC	22

Stream Name	Outfall Designation Stream (XX)	Outfall Designation Tributary (YY)
Mill Creek Tributary	MC	23
Mohler Creek - Main Branch	MO	MB
Mohler Creek Tributary	MO	T1
Mohler Creek Tributary	MO	T2
Morgana Run - Main Branch	MR	MB
Mud Brook - Main Branch	MU	MB
Nimisila Creek - Main Branch	NC	MB
Nine Mile Creek - Main Branch	NM	MB
Pancake Creek - Main Branch	PA	MB
Pancake Creek Tributary	PA	T1
Pancake Creek Tributary	PA	T2
Pepper Creek - Main Branch	PC	MB
Pigeon Creek - Main Branch	PG	MB
Plum Creek - Main Branch (1)	P1	MB
Plum Creek Tributary	P1	T1
Plum Creek Tributary	P1	T2
Plum Creek Tributary	P1	T3
Plum Creek Tributary	P1	T4
Plum Creek - Main Branch (2)	P2	MB
Plum Creek - Main Branch (3)	P3	MB
Porter Creek - Main Branch	PO	MB
Rocky River - Main Branch	RR	MB
Rocky River - East Shoreline	RR	ES
Rocky River - West Shoreline	RR	WS
Rocky River - East Branch	RR	EB
Rocky River - West Branch	RR	WB
Rocky River West Branch in North Olmsted	RR	WB
Rocky River - West Branch Tributary	RW	MB

Stream Name	Outfall Designation Stream (XX)	Outfall Designation Tributary (YY)
Rocky River - West Branch Tributary	RW	T1
Rocky River - West Branch Tributary	RW	T2
Rocky River - West Branch Tributary	RW	T3
Rocky River - West Branch Tributary	RW	T4
Rocky River - West Branch Root Ditch Tributary	RW	RD
Sagamore Creek - Main Branch	SA	MB
Sagamore Creek Tributary	SA	T1
Sagamore Creek Tributary	SA	T2
Sagamore Creek Tributary	SA	T3
Sagamore Creek Tributary	SA	T4
Sagamore Creek Tributary	SA	T5
Sagamore Creek Tributary	SA	T6
Sagamore Creek Tributary	SA	T7
Sagamore Creek Tributary	SA	T8
Sagamore Creek Tributary	SA	T9
Schocalog Run - Main Branch	SR	MB
Shaw Brook - Main Branch	SB	MB
Spencer Creek - Main Branch	SN	MB
Spring Creek - Main Branch	SP	MB
Stickney Creek - Main Branch	SK	MB
Tinkers Creek - Main Branch	TC	MB
Treadway Creek - Main Branch	TW	MB
Tuscarawas River - Main Branch	TR	MB
Van Hyning Run - Main Branch	VH	MB
West Creek - Main Branch	WC	MB
West Creek Tributary	WC	T1
West Creek Tributary	WC	T2

Stream Name	Outfall Designation Stream (XX)	Outfall Designation Tributary (YY)
West Creek Tributary	WC	T3
West Creek Tributary	WC	T4
West Creek Tributary	WC	T5
West Creek Tributary	WC	T6
West Creek Tributary	WC	T7
West Creek Tributary	WC	T8
West Creek Tributary	WC	T9
West Creek Tributary	WC	10
West Creek Tributary	WC	11
West Creek Tributary	WC	12
West Creek Tributary	WC	13
West Creek Tributary	WC	14
West Creek Headwater	WC	H1
West Creek Headwater	WC	H2
West Creek Headwater	WC	H3
West Creek Headwater	WC	H4
West Creek Headwater	WC	H5
Wiley Creek - Main Branch	WI	MB
Wiley Creek	WI	OT
Wolf Creek - Main Branch (1)	W1	MB
Wolf Creek Tributary	W1	T1
Wolf Creek Tributary	W1	T2
Wolf Creek Tributary	W1	T3
Wolf Creek - Main Branch (2)	W2	MB
Wood Creek - Main Branch	WD	MB
Wood Creek Tributary	WD	T2
Wood Creek Tributary	WD	T3
Wood Creek Tributary	WD	T4
Wood Creek Tributary	WD	T5
Wood Creek Tributary	WD	T6
Wood Creek Tributary	WD	T7
Wood Creek Tributary	WD	T8
Wood Creek Tributary	WD	T9
Yellow Creek - Main Branch	YC	MB

Appendix B

Inventory Form

General Location Information		
Receiving Stream:		
Stream Segment:		
Watershed:		
Community:		
County:		
Parcel:		
State Plane N:		
State Plane E:		
CRGS N:		
CRGS E:		Outfall Photograph
Latitude:		
Longitude:		
Elevation (ft):		
Location Description:		
Storm Sewer Map Information		
Outfall on Map: <input type="checkbox"/> Yes <input type="checkbox"/> No		
Map ID/Number:		
Map Source:		
Outfall Located on (facing downstream)		
Pipe Characteristics		Location Map
Pipe Shape:		
<input type="checkbox"/> Circular <input type="checkbox"/> Elliptical <input type="checkbox"/> Egg <input type="checkbox"/> Rectangular <input type="checkbox"/> Other, describe:		
Pipe Height (in):		
Pipe Width (in):		
Pipe Material:		
<input type="checkbox"/> RCP <input type="checkbox"/> PVC <input type="checkbox"/> VCP <input type="checkbox"/> Cast Iron <input type="checkbox"/> CMP <input type="checkbox"/> Other, describe:		
Pipe Condition:		
<input type="checkbox"/> Good <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> N/A		
Height from Invert to Stream Flow Level (ft):		Additional Details
Outfall Type/Ownership		Comments
Outfall Type:		
Owner:		
Authority:		
Other ID:		
NPDES Permit:		

Appendix C

Inspection Form

		Receiving Stream:		Location Description:	
		Community:			
Inspection Information					
Project:					
Inspection Date:		Time:		Type:	
Agency:					
Department:					
Crew Leader:					
Crew Member:					
Crew Member:					
Time of Last Rain: <input type="checkbox"/> < 24 Hrs. <input type="checkbox"/> < 48 Hrs. <input type="checkbox"/> < 72 Hrs. <input type="checkbox"/> > 72 Hrs.					
Pipe Flow: <input type="checkbox"/> None <input type="checkbox"/> < 1/4 Pipe. <input type="checkbox"/> < 1/2 Pipe <input type="checkbox"/> < 3/4 Pipe					
<input type="checkbox"/> Full <input type="checkbox"/> Trickle					
Pipe Submergence: <input type="checkbox"/> None <input type="checkbox"/> < 1/4 Pipe. <input type="checkbox"/> < 1/2 Pipe <input type="checkbox"/> < 3/4 Pipe					
<input type="checkbox"/> Full					
Comments:					
Inspection Image					
Analytical Results					
Lab Analysis ID:					
Analyzed By:					
Fecal Coliform: (Colonies/100 ml)					
E. Coli: (Colonies/100 ml)					
Ammonia (mg/l):					
Temperature (C):					
PH:					
Conductance (us):					
Phosphorus (mg/l):					
Dis. Oxygen (mg/l):					
Other Parameters/Results					
Recommendations					
Action Required: <input type="checkbox"/> No <input type="checkbox"/> Perform Problem Source Investigation					
Comments:					

Appendix D

Example of a Quality Assurance Management Plan

Cuyahoga County Board of Health

Quality Assurance Management Plan

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Program Organization

The CCBH mission is to assure optimal health and environment for every citizen in its district by administering all provisions of the public laws of the state and of the Health Department, and further to do all things reasonably necessary to protect and improve the health of its residents of the communities it serves by actively working towards:

- a. Prevention and control of communicable disease
- b. Promotion of health education
- c. Improvement of sanitary conditions in the environment
- d. Improvement of the health of its residents by supporting or in some cases providing medical, nursing and supportive services for the early diagnoses, prevention, and preventative treatment of disease and disability.

To carry out this mission, the CCBH relies on environmental data from a variety of sources to make decisions to protect the health of the public and the environment. To ensure that the basis for these decisions is sound, CCBH requires that programs have appropriate quality systems in place. These systems are intended to provide reasonable assurance that all environmental data generated and processed will be scientifically valid, of known precision and accuracy, complete, representative, comparable, and where appropriate legally defensible.

Management, Organization and Responsibilities

The Environmental Health Director is responsible for the Department's Environmental Health Programs and to ensure that the policies of the Department are maintained.

The Deputy Director is responsible for the Environmental Health's district programs (including Water Quality) oversees the completion of the overall district programs and to ensure that the policies and procedures of the Cuyahoga County Board of Health are maintained during the completion of these activities.

The CCBH Supervisor over the water quality program and Phase II storm water program is responsible for the overall function of those programs which includes budget and job activities that are performed.

The CCBH Program Manager over the Surface Water Quality and Storm Water Programs is responsible for the program management of these programs. This includes budget details and the day to day management of the programs. This program manager is also responsible for the quality assurance management plan for these programs, which includes the monitoring and educational outreach efforts.

The authority of the Program Manager in regards to the QA program includes the management of the quality assurance plan. This will include the management of the records generated from the QA plan (calibration charts, lab checklists, sample blanks and duplicates, equipment checklists), and a detailed summary report annually on each specific program with regards to the QA plan requirements. This manager will be accessible to the staff in regards to questions concerning any QA Plan policies. Likewise, the quality assurance management plan will be

made available to all staff. This plan will provide the basic information on all QA affected programs and should provide the necessary information to answer any questions that may arise.

The sanitarians that perform activities in the storm water and water quality programs are responsible for the completion of tasks for the monitoring, sampling and outreach efforts of these programs. They are also responsible in following the quality assurance plans for the required components of the program they are working in. All of these sanitarians will receive a Quality Assurance Manual that will also include all the technical information on equipment that will be used for the water quality programs. All sanitarians will sign off that they have received and read this manual.

The interns who work in these programs are responsible for the completion of required tasks and the writing of reports on the tasks that were performed. These reports are due by the completion date of their internship. They are also responsible in following the quality assurance plans for the programs in which they work. They will also receive the Quality Assurance Manual.

The program manager of the water quality programs and QA program will provide training to all staff that will be affected by the QA Plan. This training will be done annually and will include all aspects of this plan including equipment information, sampling protocols and report generation.

Water Quality Program

The Cuyahoga County Board of Health conducts an extensive water quality program. The focus of this program is an overall watershed based approach when dealing with water quality issues. This program consists of the following responsibilities:

- Identifying and eliminating public health nuisances and hazards in the surface waters within the Health District
- Surveying the various watersheds within the Health District
- Supporting the Household Sewage, Storm Water, Semi-public Sewage, Bathing Beach and Parks & Recreation Programs
- Educating the public on Non-Point Source Pollution issues
- Participating in local watershed protection groups and meetings

The Water Quality Program Manager administers the department's surface water quality programs. These programs are responsible for monitoring the surface waters of the state in the CCBH's jurisdiction. This monitoring includes chemical, physical and biological sampling. The surface water chemical sampling includes (bacteriological testing as well as several chemical parameters requiring laboratory analysis or the use of a meter). The biological and physical sampling includes macroinvertebrate sampling (using Ohio Department of Natural Resources methods, and habitat evaluations methods developed by Ohio EPA.)

Personnel Qualifications and Training

Employees hired by the CCBH are all Registered Sanitarians except the college interns who are required to be at least a sophomore with several courses in biology/ chemistry and have some lab experience. The educational background of these personnel must include a four-year degree in a

natural science and be eligible to be a Registered Sanitarian through the Sanitarian Registration Board for the State of Ohio.

Each year, all Registered Sanitarians must receive a minimum of 18 continuing education units in environmental and public health courses. These hours are submitted annually to the State Board of Sanitarian Registration and once evaluated, the renewal RS license is issued to each sanitarian.

The CCBH will provide educational programs to the staff whenever changes are made to programs. This includes the QA Plan. All staff members who perform water quality activities will be trained in how to properly monitor and sample as is required under the QA Plan.

The Program Manager is responsible for training the staff in the specific programs when changes or new technology is relevant. The Program Manager submits the information for the training session to the State Board of Sanitarian Registration. This includes an outline of the training session, the number of hours the session will be and who will be presenting the training seminars including their knowledge and educational background.

The Office Manager is responsible to ensure that each sanitarian renews their registration on an annual basis. It is up to each sanitarian to ensure they have the appropriate number of continuing education units for any given year.

Quality Assurance System

Responsibility for oversight of environmental data quality for the CCBH has historically been distributed among a number of programs in the Environmental Health Division (EHD). In an effort to coordinate quality assurance oversight of water quality data, the CCBH EHD has emphasized those QA components into this QA Plan.

The Quality Assurance components can be generally characterized as planning, implementation or assessment. The EHD's quality assurance system consists of the following:

Planning

The Water Quality Program Manager is ultimately responsible for ensuring that data generated by the department within the water quality programs is appropriate for their intended use. This responsibility includes scientific study design, appropriate QA planning, development of DQO's, preparation of QA planning documents where appropriate and the coordination of technical and data quality issues among field, laboratory and data assessment staff involved in this activity.

DQOs are qualitative and quantitative statements of a study's technical and quality objectives that define the appropriate type of data and specify tolerable levels of potential decision errors. DQOs will be established and documented prior to data collection and/or assessment activities. At the beginning of any investigation or data collection activity, the program manager is responsible for initiating DQO development. During the early planning phase of the investigation or project, the program manager must clearly establish the intended use of the data, the time and resource constraints and the required data quality required. This process requires effective communication among the program manager, field and laboratory staff.

Implementation

Standard Operating Procedures (SOP) are documents that describe the officially approved procedures for performing certain routine tasks. SOPs are useful when it is necessary to ensure comparability among activities performed on different occasions or by different individuals. The CCBH will utilize SOPs whenever appropriate in the water quality programs. These SOPs have been developed and published within this document under Standard Operating Procedures for Water Quality Programs.

Information Management

The program manager for the water quality programs will be responsible for the managing of information on the water quality programs.

Assessment and Response

Assessments of activities are used to verify that measurement systems are operating appropriately and that the data generated by these systems are appropriate for their intended use. Assessments will be performed on the water quality equipment to ensure equipment is operating as designed. Assessments will also be performed on the staff performing water quality monitoring activities by the observance of water quality monitoring techniques while in the field by the program manager of the water quality program, and other peer reviewers.

All assessments will be performed annually to ensure the QA Plan is being followed as desired. Possible types of assessments will include a quality systems audit by the program manager, peer reviews, performance evaluations, data quality assessments and surveillance.

Documents and Records

The information generated from the water quality monitoring activities will be provided as data documents and records. These records and documents will consist of:

- water quality lab analysis results on a form supplied by the Cuyahoga County Sanitary Engineers Water Quality Control Lab (CCSWQCL);
- biological assessments on a form supplied by the Department of Natural Resources for macroinvertebrate studies;
- QHEI and HHEI information on a form supplied by the Ohio EPA;
- computer database for all water quality chemical sampling results;
- Log books for equipment supplied by the CCBH.

The program manager of the water quality programs will be responsible for assessing the completed forms filled out by the field staff once the work is completed to ensure that the documents accurately reflect the completed work.

All paper documents will be kept in appropriate water quality files in the water quality program manager's office. Staff will have access to these files at all times. When appropriate the information from these forms will be entered into the CCBH's water quality database.

The water quality results on these forms will be published annually in a water quality program summary for the work performed that calendar year.

The computer database is an Access database that the CCBH staff has the ability to access at all times. This database has the ability to generate reports and to provide all pertinent information on a given monitoring location (lab analysis results, location, GPS coordinates, photos, maps, investigation information, correspondence information, city and watershed). This database was developed by the Northeast Ohio Regional Sewer District (NEORSB).

All staff that will be utilizing this database will be appropriately trained. The program manager and one office support staff will have administration access to making changes to the database. This will allow for the integrity of the information to remain viable. Both the program manager and the office support staff personnel will be trained by the NEORSB.

Procurement of Services

Contractual services involving the acquisition or analysis of environmental data shall be planned and controlled to ensure that these services meet applicable technical and QA requirements.

1. College interns shall be hired in accordance with applicable hiring practices of the CCBH. The intern shall be at least a sophomore in college with several courses in biology/chemistry and have lab experience, as well as have proficiency in computer skills.
2. Laboratory Services for water quality data shall be obtained through the Cuyahoga County Sanitary Engineer's Water Quality Lab, unless deemed necessary by an Environmental Health Supervisor, to obtain services from another approved water quality lab.
3. A Memorandum of Understanding must be obtained with any community who desires to contract with the CCBH for Phase II Storm Water Activities to be conducted on behalf of that community.

Procurement of Equipment and Supplies

The procurement of equipment and supplies for water quality monitoring operations shall be planned and controlled to ensure that the quality of obtained goods is documented and meets the technical requirements of the Ohio EPA and the CCBH, Division of Environmental Health. Procurement of goods shall in all instances abide by the policies of the CCBH. Quality assurance specifications shall be clearly indicated in purchase orders or related procurement documents.

1. Purchase of equipment and supplies shall be initiated by a Program Manager, in accordance with the CCBH policy on purchase orders, and approved by an Environmental Health Supervisor. Any purchase in excess of \$300.00 must be accompanied by a purchase order. Purchases totaling \$1,000.00 or more require three written quotations to be attached with the purchase requisition. For purchases from \$300.00 to \$1000.00, three quotations must be obtained, but it is the discretion of the division to have supporting justification to ensure that accountability and best prices are obtained.

PERMANENT SAMPLING PROJECT

SAMPLING PROCESS DESIGNS

Currently, 53 permanent sampling sites are chosen to assess water quality in the three major watersheds in Cuyahoga County: the Rocky River, Cuyahoga River, & Chagrin River. Sites are chosen to measure the effect on water quality beginning at the county line and continuing downstream as different tributaries enter the stream or land use changes emerge. Special emphasis is placed on areas using household sewage treatment systems. Each site is sampled three times from May through October during dry weather conditions for the following parameters: E. coli, fecal coliform, dissolved oxygen, specific conductance, temperature, pH, total suspended solids, total phosphorous, ammonia, and flow rate. CCBH defines dry weather as at least 72 hours with less than 0.1 inch of precipitation. Precipitation is measured using the NOAA website.

The permanent sampling locations are broken down into three sections: East, Central and West. Two principal technicians are responsible for performing the permanent sampling requirements for their section. Each section will receive an equipment manual, quality assurance manual and calibration log book. The equipment manual will contain manuals of all the equipment that their section will use. The quality assurance manual will contain this policy along with all attachments, and the locations of all the permanent sampling locations throughout the county including photographs of the site and a map. The calibration log will consist of a field notebook that must be filled out every time a piece of equipment is calibrated. Also, any problems or other identifiable information must be put into this log that may affect any of the sampling data that is obtained.

Storm Water Program

Outfall Survey and Documentation of Locations.

The CCBH Storm Water Program provides for the survey of Municipal Separate Storm Sewer Systems (MS4s). The CCBH Water Quality Program Manager is responsible for the consistent application of MS4 documentation within those communities who contract for this service.

The CCBH will identify all possible MS4 outfall locations within the community by:

- Utilizing a city storm sewer map for outfall locations and field assess them for accuracy;
- Walk the open creeks and streams of the city to identify all possible MS4 outfall locations;
- Walk all open ditches and identify areas where they connect with surface waters of the state.

During this survey, the CCBH will perform the following activities:

- Number the MS4 outfall with a city unique numbering system (set up by database);
- Digital photograph MS4 outfall;
- Utilize a dry erase board: number location on board and include in picture for identification purposes;
- Utilize a GPS unit to get coordinates of MS4 outfall location;
- Mark hard copy of city storm sewer map for approximate location of outfall;

Once completed, all information will be entered into water quality database and shared with the community.

Visual Observations of MS4 Outfalls During Dry Weather

Visual screening of outfalls during dry weather periods will identify if there is a possible illicit discharge within that MS4 system. Dry weather is defined as less than .1" of rain in past 72 hours. If the visual observation indicates that the outfall is flowing at this time, then a sample will need to be obtained. The outfall is not considered to be flowing if there is only a very small amount of water observed in this area. The subjective nature of this observation warrants a follow up screening at a later time when questions arise as to the amount of water observed at that outfall at any one point in time.

Dry Weather Sampling

The majority of all MS4 outfall sample analysis will be for fecal coliform. The data collected from this monitoring will allow communities the ability to prioritize the MS4s in which illicit discharge source identification is required.

- Sample bottles will be obtained from the CCSWQCL, 6100 Canal Road, Valley View, Ohio. Bottles are 100-milliliter autoclaved Nalgene plastic, preserved with sodium thiosulfate.
- Grab samples are collected only during dry weather. Sample technicians shall wear disposable gloves.
- Bottles are labeled with the sample location, time, and date. They are placed in a cooler filled with ice water (four degrees Celsius), and transported to the CCSWQCL for analysis no later than six hours after collection.
- Technicians fill out a laboratory manifest supplied by the CCSWQCL, indicating the location of each sample, the time it was collected, what tests will be run (in this case, fecal coliform), the sampler's name and company, and the time the samples reached the laboratory.
- Each technician collects duplicates and a blank sample once per month for quality control.
- Laboratory analyzes samples using fecal coliform membrane filter procedure as described in Method 9222 D of Standards Methods for the Examination of Water and Wastewater (18th Edition).

Macroinvertebrate Assessment

Biological monitoring is an effective means for identifying water quality problems. Aquatic biological communities reflect overall ecological integrity (i.e., chemical, physical and biological integrity). These communities change in response to a wide variety of pollutants and to the cumulative impacts of those pollutants. Biological monitoring is utilized for detecting the health of aquatic environments and assessing the relative severity of the pollution impacts.

- Use Ohio Department of Natural Resources' (ODNR) Stream Quality Assessment Form and training (obtained through ODNR and from the Isaac Walton League of America) to assess water quality through the health of the macroinvertebrate community.
- Stream quality assessment forms, macroinvertebrate identification guide, and assessment equipment (seines, macroinvertebrate pan, oilcloth, and tweezers) are available at the Cuyahoga County Board of Health office.
- The Quality assessment forms and ODNR manual are included in this manual for easy field access.

Protocol for use of the Hester- Dendy Samplers

This device is an artificial substrate sampler. It is designed to be placed in the stream for four weeks for colonization of benthic macroinvertebrate organisms to attach themselves to the masonite plates. It is important to establish the location of where the sampler is placed, either through GPS or other means. The sampler is made up of 9 masonite plates on an eye bolt with spacers in between each plate. It has 0.10 m² of sampling area. The 9 plates are 76 by 76 mm (3 by 3 in.) each. It is to be attached to either a concrete block or a large boulder and submerged in the stream, in a run area. Retrieval of the samplers is accomplished by removing from attachment to the concrete block. Care needs to be taken not to dislodge organisms while removing from the stream. Place sampler in a quart container or other sealed plastic container with stream water and transported to the CCSWQCL for counting. Counting and identification of organisms should be done in a white enamel container using forceps and a hand held magnifier if needed. Counting must be done in the same day otherwise a 10% formalin preservative must be added to the container. Results are to be entered on the ODNR Macro Invertebrate evaluation form for each site.

EQUIPMENT MAINTENANCE AND CALIBRATION

SEASONAL RESPONSIBILITIES

All equipment manuals are available in the CCBH laboratory, or in the program manager's office. The program manager will ensure all equipment is functioning properly as follows:

YSI MODEL 85 METER

- Replace the dissolved oxygen membrane cap at the beginning of the season as described in Section 3.1 of the Operations Manual. Afterward, replace the cap if dissolved oxygen readings become erratic, or every two to eight weeks.
- Check the expiration dates of the conductivity buffer solution.
- Calibrate the meter for conductivity prior to use each season as described in Section 5.2 of the Operations Manual. Perform additional calibration only as needed (i.e. if readings become erratic, or conductivity reading in dry air varies significantly from 0.0).
- At the end of the sampling season, clean the conductivity cell with Dow Chemical Bathroom Cleaner as described in Section 9.1 of the Operations manual, and remove the batteries for winter.

YSI 556 MPS

- Replace the dissolved oxygen membrane prior to first yearly use, and every two to eight weeks thereafter, or if D.O. readings become erratic. Instructions for this procedure are described in section 6.2.3 of the operations manual.
- Calibrate for conductivity prior to use each season as described in section 6.2.2 in the operations manual. Perform additional calibration for conductivity only if readings become erratic.
- Calibrate for pH prior to use each sampling session as described in section 6.2.4 in the operations manual.
- Calibrate the barometer as specified in section 10.10 in the operations manual
- Remove batteries at the end of the season.

GLOBAL FLOW PROBE FP101

- Change batteries as needed.
- Ensure that the propeller is moving freely.
- Ensure that the meter is operating in feet per second (fps).

OAKTON pH METER

- Check expiration dates on all pH buffer solutions.
- Condition the meter before use each season.
- Calibrate the meter before use each season with 7.0, 10.0, and 4.01 buffer solutions.
- Remove batteries at the end of the season.

FIELD RESPONSIBILITIES

The program manager of the water quality programs will inspect all equipment and verify all necessary parts are present each time equipment is returned to the CCBH offices. Field sanitarians will be required to sign out equipment on sheets in the CCBH program manager's office prior to taking equipment into the field. All replacement parts are located in the Cuyahoga County Board of Health laboratory or the Program Manager's office. Contact the Program Manager when a question arises as to maintenance or equipment locations. Each field sanitarian shall inspect all equipment prior to use in the field each day as follows:

YSI 556 MPS

- Inspect DO membrane for wrinkles, damage, looseness, and air bubbles
- Ensure that probe was stored wet
- Check for build up on silver anode
- Check for build up on gold anode
- Inspect pH/ORP sensors for debris
- Inspect temperature and conductivity probes for cleanliness
- Check Battery Strength
- Calibrate the pH probe with 7.0 and 10.0 buffer solutions before the day's use as described in Section 6.2.4 of the Operations Manual.
- Calibrate for dissolved oxygen in % saturation prior to each day's use as described in Section 6.2.3 of the Operations Manual.

YSI Model 85 Meter

- Ensure that the probe compartment is moist.
- Inspect dissolved oxygen membrane for wear
- Check for debris in probe
- Check battery strength
- Calibrate for dissolved oxygen before use, and whenever the elevation changes significantly (more than 100 feet). Calibration instructions for dissolved oxygen are described in Section 5.1 of the Operations Manual, and are also taped inside each meter's carrying case.

Global Flow Probe FP101

- Check Batteries
- Ensure propeller is unobstructed and moves freely

Oakton pH Meter

- Check batteries
- Check probes for debris
- Calibrate with 7.0 and 10.0 buffer solutions before each day's use.

Sediment Stick

- Check for cracks

Thermometer

- Ensure thermometer is operational

Macroinvertebrate nets

- Inspect seine for tears
- Ensure seine is free of debris from previous sampling

Macroinvertebrate kit (properly stocked as follows):

- Sampling container
- Shower curtain or oil cloth
- Thermometer
- Two sets of tweezers
- Two magnified specimen holders
- Laminated macroinvertebrate identification sheets (Group 1, 2, and 3 Taxa)

Inspection / Acceptance Requirements for Supplies and Consumables

All supplies will be received from approved sources and inspected prior to use by the Program Manager. The following list of supplies will be available at the CCBH laboratory.

- Nalgene plastic sample bottles: supplied by CCSWQCL
- De-ionized Water: Supplied by CCSWQCL
- Potable Water: Cleveland Water
- Instruction manuals for YSI meters and flow meters
- DO Membranes
- DO Membrane solution (KCl Solution)
- pH Reagents
- Latex Rubber Gloves
- Conductivity Reagents

Data Acquisition Requirements (Non – Direct Measurements)

- Sediment readings will be obtained utilizing conversion tables provided by the Ohio Department of Natural Resources, Division of Natural Areas and Preserves Scenic Rivers Section. Copies of this document are available at CCBH.
- The Ohio Department of Natural Resources, Division of Natural Areas and Preserves Scenic Rivers Section Macro invertebrate Identification Guide is used to identify macro invertebrates in the field. Copies of this document are available at CCBH.

- The Ohio EPA QHEI and HHEI indexes will be utilized. Copies of these documents are available at CCBH.
- Rainfall data is obtained from rain gauges at wastewater treatment plants in the appropriate watershed. CCBH defines dry weather as at least 72 hours with less than 0.1 inch of precipitation. Precipitation is measured using the NOAA website. (www.srh.noaa.gov/data/obhistory/KCLE.html).

Data Management:

- Sanitarians and field staff complete field data sheets and flow calculations.
- The Program Manager receives all reports on sampling from CCWQL.
- Data entered into the Access Water Quality Database at CCBH will be performed by the Program Manager as well as designated office support staff personnel.
- Field sheets are stored in files at CCBH in the Program Managers office

SECTION A CHEMICAL PARAMETERS

Chapter 1

Program Management

A.1.1. Project Description

The CCBH will perform chemical monitoring in areas throughout the county to serve a variety of purposes. Different projects will vary according to the purpose of the data. Criteria for determining a project's design will include the following:

- Tributaries receiving effluent from HSTSs
- Previous studies conducted nuisance complaints
- Stream corridors previously not monitored or assessed
- Storm sewer outfall studies
- Grant objectives

Monitoring activities will take place during the recreational season from May through October. The information generated from these projects will be provided to the appropriate agency as well as local community officials. Problem areas will be identified and forwarded to those agencies for the proper follow-up investigations and remediation.

Monitoring Overview

Table 1.1 summarizes possible monitoring designs, including the parameters tested, the methods used, precipitation, frequency of monitoring, and quality control requirements.

Table A.1.1 PROJECT SCOPE

Parameter	Method	Precipitation	Monitoring Frequency	Quality Control
Temperature				
Turbidity				
Dissolved Oxygen				
pH				
Fecal Coliform				
E. coli				
Specific Conductance				
Flow				
Ammonia				
Phosphorous				
BOD				
Suspended solids				

Table 1.2 identifies the schedule of major activities associated with a given project.

Table A.1.2 PROJECT SCHEDULE

Activity	Date
Training (including quality control)	
Check equipment	
Initiate Monitoring	
Initiate data entry	
Review data with technical advisors	

A.1.1.a. CHEMICAL SAFETY

The chemical sampling that will be occurring with a project will consist of sample analysis by the CCSWQCL. They will supply the CCBH and CSWCD staff with the sample bottles required for each parameter. All bottles will be properly prepared by laboratory personnel prior to pickup by the employees who are collecting the samples. Bottle preparation varies for different parameters, and is described in Section A.2.2.

The pH will be monitored utilizing a pH meter. The pH calibration solutions of 4.0, 7.0 and 10.0 will be the only chemicals these samplers will be using while in the field. It is very important when working with these chemicals to know the proper handling techniques and possible hazards. Even though the chemicals are used in very small amounts and are, for the most part, considered non-hazardous, they still can be potentially harmful to you and/or the environment. Following the guidelines below will ensure your safety and well-being.

- Know your equipment, sampling instructions, and procedures before going out into the field. Enclosed in each pH kit are Material Safety Data Sheets (MSDS) for each of the chemicals. These sheets are provided by the chemical company and contain very specific information on the chemical and the proper first aid if someone ingests the chemical, or if it comes in contact with someone's eyes or skin.
- Read the MSDS sheet for each chemical that you will be handling to familiarize yourself with the potential hazards. Know where your MSDS sheets are located when monitoring in the field.
- Keep all equipment and chemicals away from small children.
- Avoid contact between chemical reagents and skin, eye, nose, and mouth.
- Wash hands directly after using the chemical tests and before eating.
- Wear goggles and rubber gloves when handling chemicals.
- Know chemical cleanup and disposal procedures. Wipe up all spills when they occur.
- Close all containers tightly after use. Do not switch caps.
- Do not expose chemicals or equipment to temperature extremes or long-term direct sunshine and store in a climate-controlled environment (inside house or office).

A.1.2 Accuracy

Accuracy describes how close the measurement is to its true value. Accuracy is the measurement of a sample of known concentration and comparing the known value against the measured one. The accuracy of chemical measurements will be checked by performing quality assurance checks on the samples taken. This will include duplicate samples as well as blanks during field monitoring events. See quality assurance section.

A.1.3 Training Requirements

To qualify as a sample collector, training must be completed. Training will teach the monitor how to accurately select a sampling site, collect and record data. The methodology outlined for the parameters included in this QAPP must be followed completely. One training session will need to be conducted. The training for chemical data collection will entail review of parameters to be collected, safety, how to follow the sample collection methodology, how to properly record the data and proper sample handling.

A.1.4 Documentation and Records

All data that is recorded as part of the chemical sampling of a project will be provided on the appropriate forms provided by the CCBH. There will be one form per sample location. After each sample site is sampled, the collector will document all information and sample results on the form, sign, date and time before next location is sampled.

Chapter 2

Measurement / Data Acquisition

A.2.1 Sampling Process Design

The project manager and field staff will all be included in choosing the sample site locations. The following criteria will be used in site selection:

- Safe access
- Permission to cross private property, where applicable
- Sample is representative of the part of the water body of interest
- Location compliments or supplements historical data
- When more than one site is chosen, the sites will be well distributed
- Headwaters, confluences, upstream and downstream effluents, main stems of streams, and lake feeder streams will all be considered when choosing sampling sites.

Each site will be located using a Global Positioning Unit (GPS) to record the latitude and longitude. Where possible, river mile of the site will be included in the sample site description along with the name of the map that was used. The full sample site description should always be used; example: Clear Creek site #1, River Mile 1.7 at County Road 34 bridge, latitude 000000 longitude 0000000, Cleveland East, Ohio (1975) Quadrangle. Also, record the county and watershed.

A.2.2. Sampling Methods Requirements

A.2.2.a Fecal coliform

- 100-milliliter Nalgene plastic sample bottles are prepared at Cuyahoga County Sanitary Engineers Water Quality Laboratory (CCSEWQL) as follows: Bottles are washed in Liquinox cleaning solution and water, then rinsed with de-ionized water and set to air dry. The dried bottles are then autoclaved at 121 degrees for 30 minutes, capped and labeled for use. All autoclaved bottles are sealed and stamped with the date they were autoclaved. Sample bottles are preserved with 0.008% sodium thiosulfate in the laboratory prior to autoclaving.
- The CCBH employee picks up the bottles and CCSEWQL manifest sheet at the laboratory (6100 W. Canal Rd.; Valley View, OH), and transports them in their vehicle to the selected sample sites.
- The employee shall wear disposable gloves to prevent contamination of the sample, and collect grab samples by opening the bottle and filling it with the sample source. The employee shall stand downstream from the collection point so as not to contaminate the sample. The employee shall change gloves after each sample.
- The employee shall label the bottle with the location, time of day, and date of collection, and place it in a cooler filled with ice water (four degrees Celsius) inside their vehicle.
- The employee shall transport the sample to CCSEWQL for analysis no later than six hours after collection of the first sample.

- Upon reaching CCSEWQL, the employee will complete the laboratory manifest, indicating their name, company (CCBH), date and the time they delivered the samples to the laboratory. Also, for each sample, the employee will fill in information regarding the location, site (i.e. storm sewer outfall, creek, etc.), time of collection, and what tests will be run (in this case, fecal coliform). The employee will keep the pink copy of the manifest, and leave the other copies at the laboratory.
- The CCBH employee will place all samples inside the refrigerator at the laboratory.
- CCSEWQL personnel analyze the samples using the fecal coliform membrane filter procedure as described in Method 9222 D of Standard Methods for the Examination of Water and Wastewater (18th Edition)

CHECKLIST

- 100 milliliter autoclaved Nalgene sample bottles preserved with sodium thiosulfate
- Disposable gloves
- Cooler
- Ice water

A.2.2.b Escherichia coliform (*E. coli*)

- The sample collection method for *E. coli* is identical to that described for fecal coliform above, except that a different sampling bottle is used.
- Sample bottles are washed, dried, autoclaved, and labeled at CCWQL as described above. However, bottles used for *E. coli* do NOT contain a preservative.

A.2.2.c BOD-5; A.2.2.d Suspended Solids; A.2.2.e Total Phosphorous; A.2.2.f Ammonia Nitrogen

- 500-milliliter and 1000- milliliter Nalgene plastic bottles are washed in Liqui-nox cleaning solution and water at CCSEWQL, rinsed with deionized water, and set to air dry. Bottles are then capped, labeled and put on a shelf for use. Either size bottle can be used for the tests listed above, but the larger bottle may be needed for unpolluted sample sites, because a larger sample volume is needed to run the lab tests.
- The CCBH employee picks up the bottles needed and a CCSEWQL manifest sheet at the laboratory, and transports them in their vehicle to the selected sample sites.
- The employee shall wear disposable gloves to prevent contamination of the sample, and collect a grab sample by opening the bottle and filling it with the sample source. The employee shall stand downstream from the collection point so as not to contaminate the sample. The employee shall change gloves after each sample.
- The employee shall label the bottle with the location, time of day, date of collection, and the parameters to be tested. If a sample will be tested for BOD-5 or suspended solids, it must be placed in a cooler filled with ice water (4 degrees Celsius) inside the employee's vehicle. Samples tested only for total phosphorous or ammonia do not need to be refrigerated, but must be preserved with sulfuric acid to a pH of less than 2 by laboratory personnel upon arrival at CCSEWQL.
- The maximum holding time for samples to be tested for the above parameters varies from 24 hours for BOD-5 to 28 days for total phosphorous. However, it is CCBH's policy to transport all samples to CCSEWQL on the same day that they were collected.

- Upon reaching CCSEWQL, the employee will complete the laboratory manifest, indicating their name, company (CCBH), the date, and the time that they delivered the samples to the laboratory. Also, for each sample, the employee will fill in information regarding the location, site (i.e. storm sewer outfall, creek, etc.), time of sample collection, and what parameters will be tested. The employee will keep the pink copy of the manifest, and leave the other copies at the laboratory.
- The CCBH employee will place all samples inside the refrigerator at the laboratory.
- CCSEWQL laboratory personnel then analyze the samples for the appropriate parameters using the methods listed below.

A.2.2.c BOD-5

- CCSEWQL personnel analyze the sample using Method 5210 B described in Standard Methods for the Examination of Water and Wastewater (18th Edition)

Checklist

- 500 or 1000 milliliter Nalgene plastic bottles
- Disposable gloves
- Cooler
- Ice water

A.2.2.d Suspended Solids

- CCSEWQL personnel analyze the sample using Method 2540 D described in Standard Methods for the Examination of Water and Wastewater (18th Edition)

Checklist

- 500 or 1000 milliliter Nalgene plastic bottles
- Disposable gloves
- Cooler
- Ice water

A.2.2. e Total Phosphorous

- CCSEWQL personnel analyze the sample using the method described in the Hach DR/4000 Spectrophotometer Procedures Manual 8190

Checklist

- 500 or 1000 milliliter Nalgene plastic bottles
- Disposable gloves

A2.2.f Ammonia Nitrogen

- CCSEWQL personnel analyze the sample using the procedures described in Method 4500 NH3 F in Standard Methods for the Examination of Water and Wastewater (18th Edition)

Checklist

- 500 or 1000 milliliter Nalgene plastic bottles
- Disposable gloves

A2.2.g Dissolved Oxygen, Specific Conductance, Temperature, and pH

- These parameters are measured in the field using either a YSI Model 85 meter and a pH meter (Oakton pHTestr 3), or a YSI Model 556 MPS (multi-probe system) meter. Technician places the probe directly into the stream until it stabilizes.
- Technician may scroll through probe menu for appropriate parameter and record data on site, or else save the information for later retrieval.
- YSI Model 85 meter is calibrated for dissolved oxygen each day before use by the field technician, and recalibrated if there is a significant change in elevation of more than 100 feet. Calibration instructions are inside the meter's carrying case, and in Section 5.1 of the Operations Manual.
- Oakton pH meter is calibrated each day before use by the field technician using 7.0 and 10.0 buffer solutions.
- Technicians have access to the Operations Manuals for all equipment located at the Cuyahoga County Board of Health laboratory.

A.2.3. Sample Custody Procedures

Many water quality monitoring tests do not require specific custody procedures since they are conducted at the sampling site by the sampler. These include those parameters measured by equipment; including pH, dissolved oxygen, temperature, specific conductance, flow. These parameters are recorded on the monitoring form which is completed and signed by the sample collector.

When the samples are analyzed by the CCSWQCL, a manifest form provided by CCSWQCL must be used. The form will be filled out with sample bottle identification, sample site description, time of collection, and what parameters must be analyzed. Both the sample collector and a representative from the CCSWQCL will sign the form when the samples are delivered to the laboratory.

A.2.4. Quality Control Requirements

Quality control samples will be taken to ensure valid data is collected. Depending on the parameter, quality control samples will consist of blanks, replicates, and split samples. In addition, quality control sessions (calibration exercises) will be held twice a year to verify the proper working order of equipment, and determine whether the data quality objectives are being met.

A.2.4.a Blanks, Replicates, Split Samples and Standardization

Blanks, replicates, and split samples are used to ensure that samples are free of cross contamination and that the sample collector is following proper procedures. The specific type and frequency of quality control samples will vary according to the design of the specific project. Table A.1.1 in Section A.1.1 (Project Description) can be used to pinpoint these specifics.

The lab blank will consist of distilled water or tap water that will be taken into the field by the collector. The collector will pour distilled water or run tap water into the sample bottle (100-milliliter autoclaved Nalgene plastic) and will then place it into the cooler filled with ice water. The lab blank will be marked as such on the bottle.

The field blank will also consist of distilled water. A bottle of distilled water will be taken into field and after a number of samples designated in the project description, the collector will pour 100 ml of distilled water into the 100 ml autoclaved Nalgene plastic bottle and place in the ice water cooler. The collector will mark on the bottle that it is the field blank.

Split Samples: After a project designated number of samples, the collector will take the split sample by collecting the sample in a bottle supplied by the CCSEWQL and then pouring the sample into the appropriate sized sample bottle. The split sample will be marked on the sample bottle with the sample site id followed by SS.

Replicate Samples: After a project designated number of samples, the sample collector will fill two separate bottles for each parameter tested with water from the same site. The second bottle will be marked with the sample site id followed by RS.

A.2.5 Instrument / Equipment Inspection, Calibration and Maintenance

The project manager or designated CCBH staff personnel will inspect all equipment and verify all necessary parts is present each time equipment is returned to the CCBH laboratory. Field sanitarians will be required to sign out equipment on sheets in the CCBH stock room prior to taking equipment into the field. All replacement parts are located in the Cuyahoga County Board of Health laboratory. Each field sanitarian shall inspect all equipment prior to use in the field each day as follows:

YSI 556 MPS

- Inspect DO membrane for wrinkles, damage, looseness, and air bubbles
- Ensure that probe was stored wet
- Check for build up on silver anode
- Check for build up on gold anode
- Inspect pH/ORP sensors for debris
- Inspect temperature and conductivity probes for cleanliness
- Check Battery Strength
- Calibrate the pH probe with 7.0 and 10.0 buffer solutions before the day's use.
- Calibrate for dissolved oxygen in % saturation prior to each day's use as described in Section 6.2.3 of the Operations Manual.

YSI Model 85 Meter

- Ensure that the probe compartment is moist.
- Inspect dissolved oxygen membrane for wear
- Check for debris in probe

- Check battery strength
- Calibrate for dissolved oxygen before use, and whenever the elevation changes more than 100 feet. Calibration instructions for dissolved oxygen are described in Section 5.1 of the Operations Manual, and are also taped inside each meter's carrying case.

Oakton pH Meter

- Check batteries
- Check probes for debris
- Calibrate with 7.0 and 10.0 buffer solutions before each day's use.

Thermometer

- Ensure thermometer is operational

A.2.5.b Data Acquisition Requirements (Non – Direct Measurements)

- Sediment readings will be obtained utilizing conversion tables provided by the Ohio Department of Natural Resources, Division of Natural Areas and Preserves Scenic Rivers Section. Copies of this document are available at CCBH.
- The Ohio Department of Natural Resources, Division of Natural Areas and Preserves Scenic Rivers Section Macro invertebrate Identification Guide is used to identify macro invertebrates in the field. Copies of this document are available at CCBH.
- The Ohio EPA QHEI and HHEI indexes will be utilized.
- Rain fall data is obtained from rain gauges at waste water treatment plants in the appropriate watershed.

A.2.5.c Data Management:

- Sanitarians and field staff complete field data sheets and flow calculations
- The program manager receives reports on sampling from CCWQL
- Data entered into Access Water Quality Database at CCBH by the program manager
- Field sheets are stored in files at CCBH in the program managers office

A.2.6 Inspection / Acceptance Requirements

Upon receipt, buffer solutions, standards and reagents used in the field will be inspected by the program manager or designated field staff for leaks, broken seals, and expiration dates. All other sampling equipment will be inspected for broken or missing parts, and will be examined to ensure proper operation.

A.2.7 Data Management

The field sample collector is responsible for collecting and recording the data accurately on the data sheet. Field data sheets will be checked and signed in the field by the sample collector. The sample collector will be responsible for verification of data and for having copies of the data sheets for reference. These copies can then be stored in a folder or three ring binder. The original data sheets will be given to the Program Manager of the project the next time the collector is in the CCBH's office. All data sheets will be stored in the CCBH's files for water quality data and designated by year and project.

The project's program manager will identify any results where holding times have been exceeded, sample identification information is incorrect, samples were inappropriately handled, or calibration information is missing or inadequate. Such data will be marked as unacceptable and will not be entered into the computer database.

Data entry begins within a week after the collector turns in the data sheets to the project's program manager. As the data is entered into the computer database, the data sheets will be checked and examined for accuracy. If a problem exists, the data collector will be contacted.

The data will be entered into the CCBH's database. This is an Access 2000 database under the windows operating system. Once all data is entered, the project manager then files the data sheets.

Chapter 3

Assessment and Oversight

A.3.1 Assessment and Response Actions

After the approval of the QAMP, it will be circulated to all employees of the CCBH who will be performing water quality activities as part of the project.

The project manager will conduct a field performance and systems audit of employees through verification of complete data sheets and field shadowing to ensure that methods are being followed. The manager is responsible for equipment and will have equipment repaired and/or replaced when necessary.

A.3.2 Reports to Management

An annual project status report will be produced by the project manager and will be given to the CCBH chain of command located on the approval page of this document. This report will include:

- Number of employees trained in a given year
- Number of retrained employees in a given year,
- Problems with data collection and documentation,
- Corrective actions needed or taken,
- Significant quality assurance problems and recommendations.

Chapter 4

Data Validation and Usability

A.4.1 Data Review, Verification and Validation

The project manager will validate the data from this project. Data recorded on approved data sheets are the acceptable data. Data sheets that do not contain sample site location, date and time of collection and signature of collector will not be accepted. These are the minimum requirements that are needed to accurately analyze the data. Data will be compared to previous year's data to identify any problems that may be recorded in the data.

A.4.2 Validation and Verification Methods

As data is entered into the database, the project manager will place a check mark or date of entry and initials on each data sheet to verify data entry has occurred. Data entered into the database will be printed out and placed in the projects file at the CCBH office.

A.4.3 Reconciliation with User Requirements

The project manager and the quality assurance manager will evaluate the actual data with the user requirements on a monthly basis. After the project manager and the quality assurance manager validate the data, they will review the quality objectives and criteria outlined in this quality assurance plan, to ensure that the data complies with the defined program criteria. This review of data will be conducted in November of each year. If a dataset does not comply with the quality objectives and criteria, then that dataset will be discarded. The accepted data are considered to be the final dataset. Once the final dataset is confirmed by the project manager, the annual reports will be produced.

Section B

Biological and Physical Parameters

Chapter One

Program Management

B.1.1 Project Description

The CCBH will perform physical and biological monitoring in areas throughout the county to serve a variety of purposes. Different projects will vary according to the purpose of the data. Criteria for determining a project's design will include the following:

- Tributaries receiving effluent from HSTS
- Previous studies conducted
- Nuisance complaints
- Stream corridors previously not monitored or assessed
- Grant objectives
- Environmental education

Monitoring activities will take place primarily during the recreational season from May through October, and will be conducted by CCBH registered sanitarians or college interns. The information generated from these projects may be provided to the appropriate agencies as well as local community officials. Problem areas will be identified and forwarded to those agencies for the proper follow-up investigations and remediation.

Physical monitoring is an effective way to evaluate the effect of surrounding land use on the aquatic environment. Physical assessments will include both Headwater Habitat Evaluation Index (HHEI) studies as well as Qualitative Habitat Evaluation Index (QHEI) studies. Because they are physical in nature, the parameters of flow and turbidity are also included in this section.

Biological monitoring is an effective means for identifying water quality problems that are sporadic in nature, or are unrelated to chemical/bacteriological problems. Because aquatic communities reflect overall ecological integrity (i.e., chemical, physical and biological), they change in response to a wide variety of factors and to the cumulative impacts of these factors over time. Biological monitoring evaluates the overall health of aquatic environment. The CCBH uses macroinvertebrate sampling when conducting biological assessments.

Monitoring Overview

Safety Considerations

When performing physical or biological assessments on a water body, safety considerations are necessary. The following are the safety issues to be considered:

- Monitor with at least one partner,
- Never attempt to wade into swift or high water conditions,
- Always get landowner permission to be on their property,
- Carry an emergency contact number and if possible, a cell phone,
- Walk cautiously over stream bottoms, as it may be slippery or uneven,
- Do not monitor during severe weather conditions,
- Have a first aid kit with you at remote sites,
- Secure your personal belongings in a safe place before entering the water,
- Keep bug repellent, sunscreen, etc available for use if necessary.

Table B.1.1 summarizes all possible physical and biological parameters. This will clarify the activities conducted at each site.

Table B.1.1 Summary of Monitoring Design

Parameter	Type of Monitoring	Frequency of Monitoring
Turbidity		
Flow		
QHEI		
HHEI		
Macroinvertebrates		

Table B.1.2 identifies the schedule of activities associated with a given project.

Table 1.2 Project Schedule

Activity	Date
Training	
Calibration and quality control sessions	
Check equipment	
Initiate Monitoring	
Initiate data entry	
Review data with technical advisors	

B.1.2 Quality Objectives and Criteria

Whenever possible, the methods with the greatest sensitivity and lowest detection limit will be employed as the primary assessment methods. Methods with lesser sensitivity and higher detection limits will be used for field confirmations or as back-up methods in the case that the primary methods are not available or functioning properly for a particular sampling event.

By combining physical and biological stream assessments, researchers can gain a well-rounded perspective of a particular stream's health. This comprehensive assessment is critical for evaluating the effect of disturbances and land use practices on aquatic communities.

B.1.2.a Macroinvertebrate Sampling

When conducting macroinvertebrate assessments, the ODNR's macroinvertebrate monitoring method and assessment form are used. Sampling procedures will be standardized as far as site, equipment and sampling technique. This means that the sampling equipment, technique and location remain constant. The data that is generated from these assessments will be compared with ODNR or Cleveland Metroparks historical data, where available.

B.1.2.b and B.1.2.c QHEI and HHEI

When conducting QHEI or HHEI assessments, Ohio EPA methods and scoring sheets are used. All interns working on these assessments are overseen by a CCBH employee who has received training from Ohio EPA personnel. It is not possible to quantitatively express the accuracy and precision of these indexes. The data that is generated from these studies will be compared with the Ohio EPA historical data, where available.

B.1.2d Turbidity (Ohio Sediment Stick)

The Ohio Sediment Stick has been calibrated to Ohio EPA total suspended solids, TSS. This tube can be purchased from the Lake County Soil and Water Conservation District.

- Turbidity is measured in inches of clarity, to the nearest ½ inch
- Range in inches of clarity is 0.5 – 36.0

- The Accuracy of the Ohio Sediment Stick to predict Total Suspended Solids (TSS) is 90% (Ohio EPA)
- A reading must be taken twice at the exact location and an average must be calculated for your final reading. $(R1 + R2) / 2 = \text{inches of clarity}$.
- The chart calibrated by Ohio EPA must be used to convert inches of clarity to TSS.
- Estimate the stream load of sediment in pounds per day, use the following calculation:
- _____ TSS x 5.39 x _____ cfs = _____ lbs/day
- Comparability – May compare with turbidimeter from water treatment plant or a Water Quality partner (EPA).

B.1.2.e Flow

Flow measurements are taken at the narrowest stream cross section possible by two technicians working as a team. Technicians will use a Global Water FP 101 probe to obtain stream velocity and stream depth, and a tape measure to measure stream cross section. Flow measurements are calculated in cubic feet per second, (using an Excel spreadsheet entitled “flow calculation” available in the public file).

B.1.3 Training Requirements

To qualify to perform physical assessments of water bodies as part of this project, training must be completed. Training will teach the employee how to accurately select sampling sites, collect and record data. The methodology outlined for the parameters included in this QAPP must be followed completely. There will be one training session per type of physical assessment being performed (QHEI or HHEI).

B.1.3.a Qualitative Habitat Evaluation Index (QHEI)

Employees must complete training to be qualified to complete a QHEI assessment. This course must go over the information that is compiled in the Ohio EPA QHEI Training Course Materials 1999. Part of the training will be in the classroom. The QHEI form will also be reviewed and the field staff familiarized with all required metrics on the form. The rest of the class will be completed outdoors in a stream that has been chosen by the trainer. The trainer must thoroughly review the site to ensure that many of the characteristics on the data sheet are present. When in the field, both the field staff and trainer will evaluate the stream habitat by completing a QHEI form individually. When finished completing their QHEI, the trainer will go over the completed form and answer any questions that may arise.

B.1.3.b Headwater Habitat Evaluation Index (HHEI)

Employees must complete training to be qualified to complete a HHEI. This course must go over the information that is compiled in the Ohio EPA HHEI Training Course Materials 1999. Part of the training will be in the classroom. Definition will be reviewed and identified. The HHEI form will also be reviewed and the field staff familiarized with all required metrics on the form. The rest of the class will be completed outdoors in a stream that has been chosen by the trainer. The trainer must thoroughly review the site to ensure that many of the characteristics on the data

sheet are present. When in the field both the field staff and trainer will evaluate the stream habitat by completing a HHEI form individually. When finished completing their HHEI, the trainer will go over the completed form and answer any questions that may arise.

B.1.4 Documentation and Records

All data that is recorded as part of QHEI or HHEI studies will be provided on the appropriate forms from the Ohio EPA.

Chapter 2

Measurement / Data Acquisition

B.2.1 Sampling Process Design

Each field staff is encouraged to take multiple readings at each sample site that they wish to monitor. The project manager and field staff will all be included in choosing the sample site locations. A map will be used to identify where data has previously been collected, if applicable, and where new sites should be located. You must be able to obtain landowner permission to use private property as a sampling site prior to sampling that location. Each sampling site must be representative of that stream or headwater. When more than one sampling site is chosen, the sites should be well distributed. Headwaters, confluences, upstream and downstream from effluents, main stems of streams, and Lake Feeder streams should all be considered.

Each site will be located using a Global Positioning Unit (GPS) to record the latitude and longitude. Where possible, river mile of the site will be included in the sample site description along with the name of the map that was used. The full sample site description should always be used; example: Clear Creek site #1, River Mile 1.7 at County Road 34 bridge, latitude 000000 longitudes 0000000, Cleveland East, Ohio (1975) Quadrangle. Also, record the county and watershed.

B.2.2 Sampling Methods Requirements

B.2.2.a Qualitative Habitat Evaluation Index (QHEI)

The qualitative habitat evaluation index (QHEI) assesses the physical characteristics of a stream. QHEI represents a measure of instream geography. There are six variables which comprise this index (represented in the following table).

Substrate
Instream Cover
Channel
Morphology
Riparian Zone
Pool Quality
Riffle Quality
Map
Gradient

A QHEI assessment will be conducted as per the requirements of the Ohio EPA. These methods are described in the Ohio EPA documents **The Qualitative Habitat Evaluation Index (QHEI): Rationale, Methods and Application** (Nov. 6, 1989).

B.2.2.b Headwater Habitat Evaluation Index (HHEI)

Primary headwater streams are the very smallest swales and streams that are the origin of larger water bodies in the state. The chemical, physical, and biological quality of larger streams and lakes is closely connected to the overall health of headwater streams and their watersheds. Primary headwater streams provide important economic and ecological functions through the retention of sediment, water, and organic matter, nutrient reduction, and by providing corridors for wildlife dispersal.

The Three Types of Primary Headwater Streams in Ohio:

- (1) Class III-PHWH Stream (cool-cold water adapted native fauna)
- (2) Class II-PHWH Stream (warm water adapted native fauna)
- (3) Class I- PHWH Stream (ephemeral stream, normally dry channel)

A HHEI assessment will be conducted as per the requirements of the Ohio EPA. These methods are described in “Field Evaluation Manual for Ohio’s Primary Headwater Habitat Streams” (April 2001).

B.2.2.c Turbidity

Turbidity is measured with the Ohio Sediment Stick, acquired from the Lake County Soil and Water Conservation District (125 East Erie Street, Painesville, Ohio 44077, 440-350-2730). The Ohio Sediment Stick is 36 inches long with a 1 inch diameter. The Ohio EPA has calibrated it to estimate Total Suspended Solids, TSS, with 90% accuracy (Anderson and Davic 2003).

Walk to a point in the stream where regular flow is identified, upstream from where you have entered the stream and/or walked through it. While holding the stick firmly, place it in the center of the water column, pointing the open end of the stick upstream. Keep the stick in this position until the tube fills with water.

Hold the stick perpendicular to the ground while looking straight down into the tube to identify the 0.4 inch black dot at the bottom of the tube. Pour water out slowly until the black dot becomes visible. Be sure to rock the tube continually to ensure that sediment remains suspended while reading the sample. Once you can see the black dot at the bottom of the tube, read the height of the water line on the side of the tube to the nearest ½ inch.

B.2.2.d Flow

- Flow is measured by two technicians working as a team.
- Flow measurement is taken at the narrowest cross section and highest velocity possible. When possible, technicians use the smallest channel through which the entire flow travels.

- Flow is determined by multiplying the stream cross section by the average depth and the average velocity to obtain the flow in cubic feet per second.
- Cross section is measured in feet using a tape measure.
- For larger streams, a tape measure is strung across the cross section and depth readings and average velocity readings are taken at each 3-foot interval. For smaller streams, depth and average velocity readings are taken without using the tape measure. (Tape measure is still needed in small streams to determine the cross section.)
- Depths are obtained by standing the Global Flow Probe FP101 in the stream bottom and measuring the height of the water column.
- Average velocity is obtained by using a Global Flow Probe FP101. Technician places the propeller directly into the flow with the arrow on the bottom pointing downstream. The average velocity (“av”) setting in feet per second is used. Technicians have access to the flow probe instruction manual at the Cuyahoga County Board of Health laboratory.
- Technicians record all readings, and calculate flow in cubic feet per second.

B.2.2.e Macroinvertebrate Sampling

Benthic macroinvertebrates are organisms without a backbone such as arthropods, mollusks, and worms that live in the substrate on the stream bottom. These organisms are collected in the riffle areas of the stream where the water contains enough oxygen for them to survive. For sampling purposes, the organisms are divided into three groups based on their sensitivity to oxygen depletion. Group One taxa, which are the most sensitive, receive three points. Organisms in this group include water penny larvae, mayfly nymphs, stonefly nymphs, dobsonfly larvae, caddisfly larvae, riffle beetle adults, and gilled snails. Group Two Taxa are worth two points. These organisms include damselfly nymphs, dragonfly nymphs, crane fly larvae, beetle larvae, crayfish, scuds, clams, and sowbugs. The pollution tolerant Group Three Taxa receive only one point, and include blackfly larvae, aquatic worms, midge larvae, pouch snails, and leeches. Therefore, higher scores indicate healthier aquatic communities.

The Ohio Department of Natural Resources (ODNR) score sheet and sampling protocol is used, and requires two participants. Both participants shall wear waders and take care not to disturb any areas upstream to the sampling area. One person positions the macroinvertebrate seine downstream of a riffle area, holding the net upright with the bottom edge sitting in the stream bottom. The samplers may need to reposition some rocks and use them to anchor down the bottom of the net. The net holder should slightly lean the pole handles towards the downstream side so that they are not positioned perpendicular to the water’s surface, and make sure that no water is overflowing the top edge of the net.

While standing beside, not within, the sampling area, the second person visually measures out a 3 feet by 3 feet area in front of the net which will be the sampling area. The second sampler uses their hands to rub all large rocks within the sampling area so that everything living on them flows into the net. These rocks are then placed outside the sampling area, and the sampler kicks

up the stream bottom in the sampling area with their feet to collect the organisms living in the smaller substrates. If the substrate allows, the sampler should work the toes of their boot 3-5 inches below the stream bottom to account for burrowing organisms. The current will carry any dislodged organisms into the net. Substrate disturbances should last 60 seconds each time performed.

Once kick seining has been completed, both participants wait a few seconds for any organisms remaining in the water column to settle onto the net. The sampler who performed the kick seining grasps the bottom left and right edges of the net using both hands, and carefully removes the net from the water with a forward scooping motion. The sampler holding the pole handles should lean the pole handles downward if necessary to adjust for the lift so that water does not run directly off the face of the net.

Both participants lay the net down over a white shower curtain or oil cloth placed on a dry stream bank where they collect the macroinvertebrates with tweezers and place them in a plastic container of water. Once they have collected the organisms on the net, the samplers remove the net and observe the white plastic sheet underneath for additional organisms.

When all of the organisms have been collected, they are identified and tallied on the ODNR score sheet according to taxonomical group. (Magnified hand lenses and field identification sheets are provided to each sampling team.) Final scores indicate the quality of the macroinvertebrate population as follows: 23 or higher = Excellent; 22 – 17 = Good; 11 – 16 = Fair; 10 or less = Poor.

B.2.3 Quality Control Requirements

The project manager will be primarily responsible for quality control over monitors. The following will be implemented to ensure QC:

- **Training:** Monitors must attend one training session that will train individuals on how to use the sampling equipment, how to collect samples and to identify macroinvertebrates.
- **Data Review:** The project manager will review all Assessment Forms that are submitted by monitors. Forms will be reviewed and checked for completeness.
- **QC Problems:** If any QC problems exist upon reviewing the assessment forms, the monitor will be contacted to discuss the problem(s) found. The data is either thrown out or qualified based on the project manager's decision. If the data is found unacceptable, the project manager will resample the site and the monitor will require retraining.

Monitors must attend a quality control workshop once per year. These workshops will include reviewing methods and observations of the staff collecting data. The project manager and designated staff will conduct the training sessions. The project manager and/or designated staff will conduct on-site inspections at random during the course of a project sampling event. The inspection will entail the project manager shadowing the field staff while data is collected and recorded. This will allow the field staff to have any questions answered and the project manager to observe their performance. The field staff must follow the specified methods and completely

fill out the data forms. Any flaws in the monitor's procedure will be noted and corrected. The project manager and his designees will attend training exercises that requires them to review the sampling methodology and sampling techniques once per two years.

B.2.4 Instrument / Equipment Inspection, and Maintenance

B.2.4.a Macroinvertebrate equipment

Seine Net

The seine net should be examined before going to the stream site for sampling. Sampling teams should make sure that the net is tied to the pole handles securely and that no holes or major abrasions on the net surface exist.

Macroinvertebrate kit

Each sampling team will take a kit into the field along with the net. They should check that the kit is properly stocked as follows:

- Sampling container
- Shower curtain or oil cloth
- Thermometer
- Two sets of tweezers
- Two magnified specimen holders
- Laminated macroinvertebrate identification sheets (Group 1, 2, and 3 Taxa)

If any problems are noticed prior to sampling, please contact the project manager for equipment repair and/or replacement before sampling begins. Store clean nets in a well ventilated area so that they can dry properly after usage. When drying the nets, keep them opened whenever possible.

B.2.4.b Ohio Sediment Stick

The tube should be kept clean at all times. Inspection must occur before and after each sample is processed. When inspecting, look for any possible cracks in tubing and any soil that may be obstructing the view of turbidity. If any sediment remains in the tube after sample is taken, rinse out thoroughly to prevent contamination of the next sample. If a crack is found in the tubing or the scale on the side of the tube is peeling, tearing, yellowing or fading, contact the project manager.

B.2.4.c Flow

Ensure that the measuring tape does not tear, stretch or fade.

Inspect the Global Flow Probe FP101 to make sure the battery is operating and the propeller is spinning freely.

B.2.5 Data Management

The field sample collector is responsible for collecting and recording the data accurately on the data sheet. Field data sheets will be checked and signed in the field by the sample collector. The sample collector will be responsible for verification of data and for keeping reference copies of the data sheets. These copies can then be stored in a folder or three ring binders. The original data sheets will be given to the Program Manager of the project the next time the collector is in the CCBH's office. All data sheets will be stored in the CCBH's files for water quality data and designated by year and project.

The project's program manager will identify any results where holding times have been exceeded, sample identification information is incorrect, samples were inappropriately handled, or calibration information is missing or inadequate. Such data will be marked as unacceptable and will not be entered into the computer database.

Data entry begins within a week after the collector turns in the data sheets to the project's program manager. As the data is entered into the computer database, the data sheets will be checked and examined for accuracy. If a problem exists, the data collector will be contacted.

The data will be entered into the CCBH's database. This is an Access 2000 database under the windows operating system. Once all data is entered, the project manager then files the data sheets.

NOTE: MOST PHYSICAL AND BIOLOGICAL DATA ARE NOT ENTERED INTO THE DATABASE, AND ARE NOT SUBJECT TO HOLDING TIMES AND CALIBRATION (EXCEPTIONS ARE TURBIDITY AND FLOW)

Chapter 3

Assessment and Oversight

B.3.1 Assessment and Response Actions

After the approval of the QAPP, it will be circulated to all employees of the CCBH who will be performing water quality activities as part of this project. It will also be circulated to those CCBH employees located on page four of this document who have signed the approval page.

The project manager will conduct a field performance and systems audit of employees through verification of complete data sheets and field shadowing to ensure that methods are being followed. The manager is responsible for equipment and will have equipment repaired and/or replaced when necessary.

B.3.2 Reports to Management

An annual project status report will be produced by the project manager and will be given to the CCBH chain of command located on the approval page of this document. This report will include:

- Number of employees trained in a given year
- Number of retrained employees in a given year,
- Problems with data collection and documentation,
- Corrective actions needed or taken,
- Significant quality assurance problems and recommendations

Chapter 4

Data Validation and Usability

B.4.1 Data Review, Verification and Validation

The project manager will validate the data from this project. Data recorded on approved data sheets are the acceptable data. Data sheets that do not contain sample site location, date and time of collection and signature of collector will not be accepted. These are the minimum requirements that are needed to accurately analyze the data. Data will be compared to previous year's data to identify any problems that may be recorded in the data.

B.4.2 Validation and Verification Methods

As data is entered into the database, the project manager will place a check mark or date of entry and initials on each data sheet to verify data entry has occurred. Data entered into the database will be printed out and placed in the projects file at the CCBH office.

Appendix E

Illicit Discharge Ordinance

MODEL ORDINANCE FOR ILLICIT DISCHARGE & ILLEGAL CONNECTION CONTROL

PLEASE NOTE

This model was developed to assist communities in implementing a storm water management program to control and eliminate illicit discharges.

This model was reviewed by the Ohio EPA and complies with Ohio EPA's Phase II Storm Water Management requirements to prohibit illicit discharges to storm water systems and to implement appropriate enforcement procedures and actions to detect and eliminate such illicit discharges.

Ohio EPA's Phase II Program requires Phase II designated entities to develop and implement a program to detect and eliminate illicit discharges. This includes the adoption of regulations to provide the Phase II designated entity the necessary authority to carry out this program. This model ordinance is intended to provide communities with a template for that regulation.

All areas highlighted in ***bold/italics*** must be adjusted for your community.

This model is a collaborative effort of the Chagrin River Watershed Partners, Inc., Chagrin Valley Engineering, Ltd. representing several CRWP member communities, the Cuyahoga County Board of Health, and the Lake County General Health District.

WHEREAS, illicit discharges to the ***[community]*** separate storm sewer system create water quality risks to public health, safety, and general welfare; and,

WHEREAS, illicit discharges may necessitate repair of storm sewers and ditches; damage to public and private property; and may damage water resources by reducing water quality; and,

WHEREAS, there are watershed-wide efforts to reduce illicit discharges to the ***[rivers to which community drains]*** and to protect and enhance the unique water resources of the ***[rivers to which community drains]*** watershed(s); and,

WHEREAS, the ***[community]*** is a member of the ***[insert names of watershed organizations or utilities in which the community is participating]*** and recognizes its obligation as a part of these ***watersheds/organizations*** to control illicit discharges and to protect water quality within its borders; and,

WHEREAS, 40 C.F.R. Parts 9, 122, 123, and 124, and Ohio Administrative Code 3745-39 require designated communities, including the ***[community]***, to develop a Storm Water Management Program that, among other components, requires the ***[community]*** to prohibit illicit discharges to their storm water system and to implement appropriate enforcement procedures and actions to detect and eliminate such illicit discharges; and,

WHEREAS, Article XVIII, Section 3 of the Ohio Constitution grants municipalities the legal authority to exercise all powers of local self-government and to adopt and enforce within their limits such local police, sanitary, and other similar regulations, as are not in conflict with general laws.

NOW, THEREFORE BE IT ORDAINED by the Council of ***[community]***, county of ***[county]***, State of Ohio, that:

SECTION 1: Codified Ordinance *Chapter XXXX Illicit Discharge and Illegal Connection Control* is hereby adopted to read in total as follows:

CHAPTER XXXX
Illicit Discharge and Illegal Connection Control

XXXX.01 PURPOSE AND SCOPE

The purpose of this regulation is to provide for the health, safety, and general welfare of the citizens of the *[community]* through the regulation of illicit discharges to the municipal separate storm sewer system (MS4). This regulation establishes methods for controlling the introduction of pollutants into the MS4 in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process as required by the Ohio Environmental Protection Agency (Ohio EPA). The objectives of this regulation are:

- A. To prohibit illicit discharges and illegal connections to the MS4.
- B. To establish legal authority to carry out inspections, monitoring procedures, and enforcement actions necessary to ensure compliance with this regulation.

XXXX.02 APPLICABILITY

This regulation shall apply to all residential, commercial, industrial, or institutional facilities responsible for discharges to the MS4 and on any lands in the *[community]*, except for those discharges generated by the activities detailed in Section XXXX.07 (A)(1) to (A)(3) of this regulation.

XXXX.03 DEFINITIONS

The words and terms used in this regulation, unless otherwise expressly stated, shall have the following meaning:

- A. Best Management Practices (BMPs): means schedules of activities, prohibitions of practices, general good house keeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to storm water. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.
- B. Community: means the *[community]*, its designated representatives, boards, or commissions.
- C. Environmental Protection Agency or United States Environmental Protection Agency (USEPA): means the United States Environmental Protection Agency, including but not limited to the Ohio Environmental Protection Agency (Ohio EPA), or any duly authorized official of said agency.
- D. Floatable Material: in general this term means any foreign matter that may float or remain suspended in the water column, and includes but is not limited to, plastic, aluminum cans, wood products, bottles, and paper products.
- E. Hazardous Material: means any material including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

- F. Illicit Discharge: as defined at 40 C.F.R. 122.26 (b)(2) means any discharge to an MS4 that is not composed entirely of storm water, except for those discharges to an MS4 pursuant to a NPDES permit or noted in Section XXXX.07 of this regulation.
- G. Illegal Connection: means any drain or conveyance, whether on the surface or subsurface, that allows an illicit discharge to enter the MS4.
- H. Municipal Separate Storm Sewer System (MS4): as defined at 40 C.F.R. 122.26 (b)(8), municipal separate storm sewer system means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):
1. Owned or operated by a State, city, town, borough, county, parish, district, municipality, township, county, district, association, or other public body (created by or pursuant to State law) having jurisdiction over sewage, industrial wastes, including special districts under State law such as a sewer district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges to waters of the United States;
 2. Designed or used for collecting or conveying storm water;
 3. Which is not a combined sewer; and
 4. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 C.F.R. 122.2.
- I. National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit: means a permit issued by the EPA (or by a State under authority delegated pursuant to 33 USC § 1342(b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.
- J. Off-Lot Discharging Home Sewage Treatment System: means a system designed to treat home sewage on-site and discharges treated wastewater effluent off the property into a storm water or surface water conveyance or system.
- K. Owner/Operator: means any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or on the owner's behalf.
- L. Pollutant: means anything that causes or contributes to pollution. Pollutants may include, but are not limited to, paints, varnishes, solvents, oil and other automotive fluids, non-hazardous liquid and solid wastes, yard wastes, refuse, rubbish, garbage, litter or other discarded or abandoned objects, floatable materials, pesticides, herbicides, fertilizers, hazardous materials, wastes, sewage, dissolved and particulate metals, animal wastes, residues that result from constructing a structure, and noxious or offensive matter of any kind.
- M. Storm Water: any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.
- N. Wastewater: The spent water of a community. From the standpoint of a source, it may be a combination of the liquid and water-carried wastes from residences, commercial buildings, industrial plants, and institutions.

XXXX.04 DISCLAIMER OF LIABILITY

Compliance with the provisions of this regulation shall not relieve any person from responsibility for damage to any person otherwise imposed by law. The provisions of this regulation are promulgated to promote the health, safety, and welfare of the public and are not designed for the benefit of any individual or for the benefit of any particular parcel of property.

XXXX.05 CONFLICTS, SEVERABILITY, NUISANCES & RESPONSIBILITY

- A. Where this regulation is in conflict with other provisions of law or ordinance, the most restrictive provisions, as determined by the *[community]*, shall prevail.
- B. If any clause, section, or provision of this regulation is declared invalid or unconstitutional by a court of competent jurisdiction, the validity of the remainder shall not be affected thereby.
- C. This regulation shall not be construed as authorizing any person to maintain a nuisance on their property, and compliance with the provisions of this regulation shall not be a defense in any action to abate such a nuisance.
- D. Failure of the *[community]* to observe or recognize hazardous or unsightly conditions or to recommend corrective measures shall not relieve the site owner from the responsibility for the condition or damage resulting therefrom, and shall not result in the *[community]*, its officers, employees, or agents being responsible for any condition or damage resulting therefrom.

XXXX.06 RESPONSIBILITY FOR ADMINISTRATION

The *[community]* shall administer, implement, and enforce the provisions of this regulation. The *[community]* may contract with the *[county]* Board of Health to conduct inspections and monitoring and to assist with enforcement actions.

XXXX.07 DISCHARGE AND CONNECTION PROHIBITIONS

- A. Prohibition of Illicit Discharges. No person shall discharge, or cause to be discharged, an illicit discharge into the MS4. The commencement, conduct, or continuance of any illicit discharge to the MS4 is prohibited except as described below:
 - 1. Water line flushing; landscape irrigation; diverted stream flows; rising ground waters; uncontaminated ground water infiltration; uncontaminated pumped ground water; discharges from potable water sources; foundation drains; air conditioning condensate; irrigation water; springs; water from crawl space pumps; footing drains; lawn watering; individual residential car washing; flows from riparian habitats and wetlands; dechlorinated swimming pool discharges; street wash water; and discharges or flows from fire fighting activities. These discharges are exempt until such time as they are determined by the *[community]* to be significant contributors of pollutants to the MS4.
 - 2. Discharges specified in writing by the *[community]* as being necessary to protect public health and safety.
 - 3. Discharges from off-lot household sewage treatment systems permitted by the *[County]* Board of Health for the purpose of discharging treated sewage effluent in accordance with Ohio Administrative Code 3701-29-02(6) until such time as the Ohio Environmental Protection

Agency issues a NPDES permitting mechanism for residential 1, 2, or 3 family dwellings. These discharges are exempt unless such discharges are deemed to be creating a public health nuisance by the *[County]* Board of Health.

In compliance with the *[community]* Storm Water Management Program, discharges from all off-lot household sewage treatment systems must either be eliminated or have coverage under an appropriate NPDES permit issued and approved by the Ohio Environmental Protection Agency. When such permit coverage is available, discharges from off-lot discharging household sewage treatment systems will no longer be exempt from the requirements of this regulation.

- B. Prohibition of Illegal Connections. The construction, use, maintenance, or continued existence of illegal connections to the MS4 is prohibited.
1. This prohibition expressly includes, without limitation, illegal connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.
 2. A person is considered to be in violation of this regulation if the person connects a line conveying illicit discharges to the MS4, or allows such a connection to continue.

XXXX.08 MONITORING OF ILLICIT DISCHARGES AND ILLEGAL CONNECTIONS

- A. Establishment of an Illicit Discharge and Illegal Connection Monitoring Program: The *[community]* shall establish a program to detect and eliminate illicit discharges and illegal connections to the MS4. This program shall include the mapping of the MS4, including MS4 outfalls and home sewage treatment systems; the routine inspection of storm water outfalls to the MS4, and the systematic investigation of potential residential, commercial, industrial, and institutional facilities for the sources of any dry weather flows found as the result of these inspections.
- B. Inspection of Residential, Commercial, Industrial, or Institutional Facilities.
1. The *[community]* shall be permitted to enter and inspect facilities subject to this regulation as often as may be necessary to determine compliance with this regulation.
 2. The *[community]* shall have the right to set up at facilities subject to this regulation such devices as are necessary to conduct monitoring and/or sampling of the facility's storm water discharge, as determined by the *[community]*.
 3. The *[community]* shall have the right to require the facility owner/operator to install monitoring equipment as necessary. This sampling and monitoring equipment shall be maintained at all times in safe and proper operating condition by the facility owner/operator at the owner/operator's expense. All devices used to measure storm water flow and quality shall be calibrated by the *[community]* to ensure their accuracy.
 4. Any temporary or permanent obstruction to safe and reasonable access to the facility to be inspected and/or sampled shall be promptly removed by the facility's owner/operator at the written or oral request of the *[community]* and shall not be replaced. The costs of clearing such access shall be borne by the facility owner/operator.
 5. Unreasonable delays in allowing the *[community]* access to a facility subject to this regulation for the purposes of illicit discharge inspection is a violation of this regulation.

6. If the *[community]* is refused access to any part of the facility from which storm water is discharged, and the *[community]* demonstrates probable cause to believe that there may be a violation of this regulation, or that there is a need to inspect and/or sample as part of an inspection and sampling program designed to verify compliance with this regulation or any order issued hereunder, or to protect the public health, safety, and welfare, the *[community]* may seek issuance of a search warrant, civil remedies including but not limited to injunctive relief, and/or criminal remedies from any court of appropriate jurisdiction.
7. Any costs associated with these inspections shall be assessed to the facility owner/operator.

XXXX.09 ENFORCEMENT

- A. Notice of Violation. When the *[community]* finds that a person has violated a prohibition or failed to meet a requirement of this regulation, the *[community]* may order compliance by written Notice of Violation. Such notice must specify the violation and shall be hand delivered, and/or sent by registered mail, to the owner/operator of the facility. Such notice may require the following actions:
 1. The performance of monitoring, analyses, and reporting;
 2. The elimination of illicit discharges or illegal connections;
 3. That violating discharges, practices, or operations cease and desist;
 4. The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property; or
 5. The implementation of source control or treatment BMPs.
- B. If abatement of a violation and/or restoration of affected property is required, the Notice of Violation shall set forth a deadline within which such remediation or restoration must be completed. Said Notice shall further advise that, should the facility owner/operator fail to remediate or restore within the established deadline, a legal action for enforcement may be initiated.
- C. Any person receiving a Notice of Violation must meet compliance standards within the time established in the Notice of Violation.
- D. Administrative Hearing: If the violation has not been corrected pursuant to the requirements set forth in the Notice of Violation, the *[community]* shall schedule an administrative hearing to determine reasons for non-compliance and to determine the next enforcement activity. Notice of the administrative hearing shall be hand delivered and/or sent registered mail.

Note: Communities need to determine appropriate body to hear this, such as Board of Zoning Appeals, Planning Commission, or other legislative body.

- E. Injunctive Relief: It shall be unlawful for any owner/operator to violate any provision or fail to comply with any of the requirements of this regulation pursuant to O.R.C. 3709.211. If a owner/operator has violated or continues to violate the provisions of this regulation, the *[community]* may petition for a preliminary or permanent injunction restraining the owner/operator from activities that would create further violations or compelling the owner/operator to perform abatement or remediation of the violation.

XXXX.10 REMEDIES NOT EXCLUSIVE

The remedies listed in this regulation are not exclusive of any other remedies available under any applicable federal, state or local law and it is in the discretion of the *[community]* to seek cumulative remedies.

Appendix F

IDDE Manual Outfall Database (Included on the attached CD-ROM)

Overview

This Outfall Database was originally developed for internal use only by the Northeast Ohio Regional Sewer District. It was adapted to share with northeast Ohio communities in 2003 to support NPDES Phase II Permit requirements and further adapted to share as part of the IDDE Manual. The Outfall Database was developed as a desktop-based application for use with Microsoft Access V. 2000 or later.

To start – please copy the entire contents of the CD to a desktop or server. The file, IDDE_OutfallDatabaseV1.mdb will start the application. Please note, after copying from the CD to a desktop or server; please ensure to remove the Read-Only property from all of the files.

Directory Structure:

This CD contains several files and directories that are needed by certain functions within the Outfall Database. The Outfall Database CD is organized as follows:

- **IDDEManual_OutfallIDB** - This is the root directory. Within this directory is the Outfall Database file – IDDE_OutfallDatabaseV1.mdb. The user could change the name of the file as necessary after initial use.
- **IDDEManual_OutfallIDB\Documentation** - This subdirectory can be used to store Outfall Database Documentation-related files. Any .PDF format files stored in this directory will be automatically linked to the Storm Sewer Map function in the Outfall Database Main Menu. Users can add additional subdirectories as necessary for file storage. There are several support documentations included in this subdirectory, such as blank inspection forms, a comprehensive Outfall Database user guide and a stream naming convention guide.
- **IDDEManual_OutfallIDB\Extra** – This subdirectory contains files that are needed to properly run the Outfall Database. ***Do not erase this subdirectory or any of the files in this subdirectory.***
- **IDDEManual_OutfallIDB\Images** - This subdirectory is currently empty, but is used assorted Images related to the outfalls. See the Users Guide for more info regarding this subdirectory. Users do not have to create any subdirectories as the Outfall Database will create outfall-specific subdirectories as necessary.
- **IDDEManual_OutfallIDB\Storm Sewer Maps** - This subdirectory can be used to store Storm Sewer Map-related files. Any .PDF format files stored in this directory will be automatically linked to the Storm Sewer Map function in the Outfall Database Main Menu. Users can add additional subdirectories as necessary for file storage.
- **IDDEManual_OutfallIDB\Watershed Maps** - This subdirectory can be used to store Watershed Map-related files. Any .PDF format files stored in this directory will be automatically linked to the Storm Sewer Map function in the Outfall Database Main Menu. Users can add additional subdirectories as necessary for file storage.

Disclaimer:

This database was adapted to share with communities to support NPDES Phase II Permit requirements as part of the IDDE Manual. The District makes no warranties, expressed or implied, with respect to the use of this outfall database to support NPDES Phase II Permit requirements or for any other specific purpose. The District and its employees expressly disclaim any liability that may result from the use of this database.

For More Information regarding the Outfall Database - Contact:

Mary Maciejowski or Jeffrey Duke
(maciejowskim@neorsd.org or dukej@neorsd.org)
Northeast Ohio Regional Sewer District
3900 Euclid Avenue
Cleveland, Ohio 44115-2506
(216) 881-6600

Appendix G

IDDE Field Guide

MCM#4 – Construction Site Runoff Control



CITY OF TIFFIN
STORM WATER MANAGEMENT PROGRAM
MCM#4 – CONSTRUCTION SITE RUNOFF CONTROL
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- 4-2. Construction Site Runoff Control Flow Chart
- 4-3. Construction Site Runoff Control Standard Operating Procedures (SOPs)
- 4-4. Stormwater Pollution Prevention Plan (SWPPP) Checklist
- 4-5. Construction Site Runoff Control Permit Application Form & Fee Schedule
- 4-6. Storm Water Construction Site Inspection Form
- 4-7. Notice of Termination (NOT) Form
- 4-8. Post-Construction Inspection & Maintenance Agreement Template for Storm Water BMPs
- 4-9. Notice of Violation (NOV) Letter
- 4-10. Stop Work Order (SWO) Form

MCM #4 – CONSTRUCTION SITE RUNOFF CONTROL

Section 1 – Introduction



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MCM#4 – CONSTRUCTION SITE RUNOFF CONTROL INTRODUCTION

This Construction Site Runoff Control program establishes the basis to control storm water runoff from construction activities that result in a land disturbance of one (1) or more acres, or less than one (1) acre of land as part of a larger development that will ultimately disturb one (1) or more acres of land. To address this minimum control measure (MCM), the City of Tiffin Codified Ordinance Chapter 909 provides compliance requirements for erosion and sediment controls as well as pollution prevention practices at construction sites.

The City of Tiffin Storm Water Management Program includes standard operating procedures (SOPs) for MCM #4 - Construction Site Runoff Control. This program includes SOPs and associated documents used to establish standards for enforcement of control measures through storm water permitting and enforcement escalation. The Construction Site Runoff Control SOPs include detailed procedures for Construction Site Runoff Control Permit Application review & approval, storm water site inspection, project closeout, and enforcement action and escalation. The Application review & approval process is used to ensure storm water BMPs and control measures are compliant with local, state, and federal regulations. The City Engineer also conducts site inspections for each active, permitted construction site on a routine basis or as necessary. If any of the sites are found to be out of compliance, the City Engineer requires remediation and corrective action through warnings, issuance of notice of violations (NOVs), and stop work orders (SWOs) if necessary.

MCM #4 – CONSTRUCTION SITE RUNOFF CONTROL

Section 2 – Permit Flow Chart

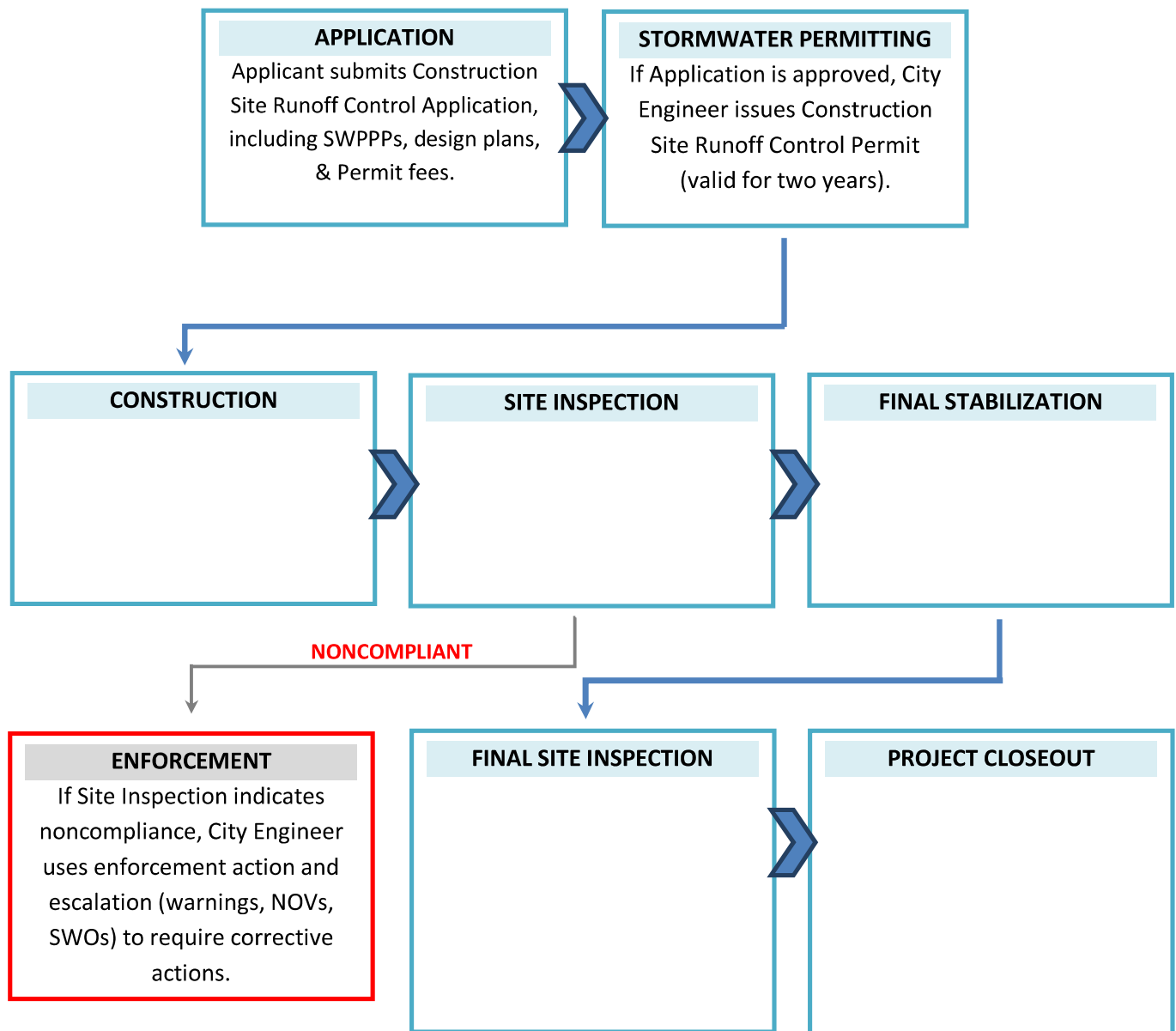


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CITY OF TIFFIN, OHIO CONSTRUCTION SITE RUNOFF CONTROL PERMIT FLOW CHART

The following flow chart documents the Construction Site Runoff Control work flow process. References to the City Engineer also include any authorized representative(s).



MCM #4 – CONSTRUCTION SITE RUNOFF CONTROL

Section 3 – Construction Site Runoff Control Standard Operating Procedures



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City of Tiffin, Ohio Construction Site Runoff Control Standard Operating Procedures

December 2018



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BACKGROUND & INTRODUCTION

Ohio EPA's General Construction Permit (GCP)

To limit the negative impacts of construction projects on Ohio's waters, the Ohio EPA Division of Surface Water administers a permitting program designed to document construction activity in the state and require practices that keep pollutants out of the streams. The permitting program is mandated by the Clean Water Act and is part of the NPDES (National Pollutant Discharge Elimination System) program.

Construction activities disturbing one (1) or more acres of total land or that will disturb less than one (1) acre of land but are part of a larger common plan of development or sale that will ultimately disturb one or more acres of land will need a permit to discharge storm water from the site. These sites must get permit coverage under the Ohio EPA's Construction General Permit #OHC000005 for discharge of storm water associated with construction activity. A Notice of Intent (NOI) application must be submitted at least 21 days prior to the initiation of construction activities and requires that a Storm Water Pollution Prevention Plan (SWPPP) be completed prior to the submittal of the NOI application. In addition to the Ohio EPA General Construction Permit requirements, the City of Tiffin must implement a Construction Site Runoff Control Program as described below.

Introduction

The City's Municipal Separate Storm Sewer System (MS4) is regulated under a Phase II MS4 Permit which requires that the City develops and implements standard procedures for the purpose of preventing and eliminating pollutants in any storm water runoff to the City's MS4 from construction activities. This document provides a compilation of Construction Site Runoff Control Standard Operating Procedures (SOPs) which establish the timeframes and detailed procedures for the following storm water control measures:

- Construction Site Runoff Control Permit Application review & approval,
- Construction site inspection,
- Project closeout, and
- Enforcement of control measures.

The SOPs described herein are established in accordance with Chapter 909 of the City of Tiffin Codified Ordinances to enforce the MCM 4 Construction Site Runoff Control program.



I. CONSTRUCTION SITE RUNOFF CONTROL PERMIT APPLICATION REVIEW & APPROVAL

A. Purpose

Chapter 909 of the City of Tiffin Codified Ordinances requires that a Construction Site Runoff Control Permit be issued for construction activities that result in land disturbance of one (1) or more acres of land, or less than one (1) acre of land as part of a larger development that will ultimately disturb one (1) or more acres of land. Note that the Construction Site Runoff Control Permit is separate from the Ohio EPA General Construction Permit (GCP).

The Construction Site Runoff Control Permit Application (Permit Application) Review & Approval process is necessary for the City to determine if the project site owner intends to comply with regulatory requirements. The City Engineer shall review and approve the Application prior to initiation of construction activities.

B. Applicant's Preparation Responsibilities

- 1) Review Chapter 909 of City of Tiffin Codified Ordinances.
- 2) Prepare and submit the following documents to the City Engineer for Permit Application Review:
 - Application fees (Administration Fee, Permit Application Review Fee)
 - One (1) copy of completed Construction Site Runoff Control Permit Application form
 - Two (2) printed copies of a complete Storm Water Pollution Prevention Plan (SWPPP or SWP3) certified by a professional engineer (P.E.), a certified professional in erosion and sediment control (CPESC), or a registered landscape architect
 - One (1) printed sets of project design plans
 - Digital set of project design plans
 - Any pertinent information related to the Storm Water BMP design including plan sheets, forms, and storm drainage calculations. Verify that all SWPPP criteria are met prior to submittal by reviewing the Ohio EPA SWPPP Checklist for Construction Activities
 - Itemized cost of construction of storm water BMPs (include construction and post-construction BMPs)
 - Performance bond (\$1,000 or cost of all storm water BMPs, whichever is greater)
 - All other required permits and documentation relevant to the project, including but not limited to the permits required and issued by the U.S. Army Corps of Engineers, the Ohio EPA and ODNR Division of Water

C. City Review Procedure

- 1) City Engineer to manage internal review and approval of Construction Site Runoff Control Permit Applications.
- 2) Assess Permit Application submittal for completeness using the "Submittal Checklist" at the bottom of Application form. Check the appropriate box(es) where applicable.

- 3) Send copies of plans and inquiries to all City Departments and other parties having an interest in the development or re-development project. Collect and consolidate any comments from applicable parties.
- 4) Use the most recent version of the Ohio EPA SWPPP Checklist to determine if SWPPP complies with regulatory requirements.
 - a) If compliant, mark the two (2) SWPPPs as 1) **CITY ENGINEER**, and 2) **KEEP ON SITE**. Keep one (1) SWPPP marked CITY ENGINEER for office use only. File the approved SWPPP with the completed Construction Site Runoff Control Permit Application form and any pertinent documentation. Set aside the copy marked KEEP ON SITE to be picked up by project site owner upon issuance of Construction Site Runoff Control Permit.
 - b) If SWPPP is noncompliant, mark each of the two (2) SWPPPs as **INCOMPLETE**. Return SWPPPs to project site owner for revisions with comments and recommendations for revisions.

Within thirty (30) calendar days after such notification from the City Engineer or authorized representative, the applicant shall make the required changes to the SWPPP and shall resubmit to the City Engineer or a written letter that the requests have been made.
- 5) Ensure Application fees are conformant with Chapter 909 of City of Tiffin Codified Ordinances.
- 6) Determine City Approval status.
 - a) If approved as submitted, authorize and date the Construction Site Runoff Control Application form. If approved with stipulations, note the required stipulations on the application form.
 - b) If application is not approved as submitted, return the Construction Site Runoff Control Permit Application submittal to the project site owner with deficiencies and the procedure for resubmittal.
- 7) Assign applicant a Permit No. Use Permit maintenance log to assign applicant next available number. Record Permit No. and issuance date on front page of Application.
- 8) Send in Permit Application Fees.
- 9) All Construction Site Runoff Control Permits shall remain valid for two (2) years from the date of approval. If construction is not initiated within two (2) years, a new approval will be required before construction can commence.
- 10) Permit holders who require an extension may make an application for continuance of the Permit by contacting the City Engineer within thirty (30) days of expiration. Failure to renew within this time period may result in a cessation of all construction activity until a valid application for renewal is received by the City Engineer. Construction activity may not resume until the application is approved and appropriate corrective actions have been implemented.

D. City Records

The following will be the minimum documentation for each Construction Site Runoff Control Permit and should be maintained for five (5) years following project closeout:

- 1) Maintain Application review & approval records, including copies of approved SWPPPs.
- 2) Keep a log of issued Construction Site Runoff Control Permits.
- 3) Maintain the number of Application reviews per calendar year, and forward to the City's Water Pollution Control Center (WPCC) for inclusion into the MS4 Annual Report.
- 4) Keep records of any correspondence with the Permittee/ project site owner in regards to the above.



II. SITE INSPECTION

A. Purpose

The City shall conduct inspections for all active construction sites within the City's MS4 in order to assess compliance with the approved SWPPP and determine whether the storm water controls required by the approved SWPPP are effective and installed properly. Please reference Chapter 909 of the City of Tiffin Codified Ordinances for inspection requirements.

B. Preparation

- 1) Review Chapter 909 of City of Tiffin Codified Ordinances.
- 2) Identify priority sites for inspection based on topography, soil characteristics, type of receiving water, history of public complaints, stage of construction, compliance history, weather conditions, or other local characteristics and issues.
- 3) Ensure City staff has proper training pertaining to site inspections including Erosion and Sediment Control techniques.

C. Procedure

- 1) City Engineer to manage site inspections for the following conditions:
 - a) Initiation of construction activity
 - b) Follow-up as needed
 - c) Following final stabilization
- 2) Bring a copy of the Storm Water Site Inspection Form and copy of approved SWPPP to the active site.
- 3) Inspect the site using the Storm Water Site Inspection Form and approved SWPPP.
- 4) Follow up with the project site owner the findings of the inspection. If feasible, prior to leaving the site, discuss any comments or recommendations to the project site owner or other responsible person to ensure corrections will be made in a timely manner.
- 5) Record inspection results, including relevant discussions, into the Storm Water Site Inspection Form.
- 6) Perform follow-up site inspection if BMP deficiencies are found and reported during the initial inspection. See Part VI of this document for enforcement action and escalation procedures.
- 7) Sites that have received verbal warnings or NOVs should be inspected more frequently.

D. City Records

The City Engineer shall maintain the following documentation for each active construction site and

should be maintained for five (5) years following project closeout:

- 1) Keep logs of number of site inspections per calendar year. Forward to the WPCC for inclusion into the MS4 Annual Report.
- 2) Maintain any public complaints and follow-up site inspections.
- 3) Keep any inspection records, including private self-inspections furnished to the City by the project site owner, as well as monthly City inspections.
- 4) Keep records of any correspondence with the project site owner.



IV. PROJECT CLOSEOUT

A. Purpose

The project closeout process is used to end Construction Site Runoff Control Permit coverage once all land disturbance activities have been completed. The Permit shall be in effect until the following conditions are met:

- Construction of temporary/permanent controls is complete, Site is Stabilized, and Temporary Controls are removed
- A set of as-built drawings of stormwater BMPs certified by Professional Engineer is submitted to the City
- A notice of termination (NOT) from Ohio EPA has been submitted to the City Engineer, including final property description and certification
- A City of Tiffin NOT has been submitted to the City Engineer
- A final site inspection has been completed by the City
- A Post-Construction Inspection & Maintenance (I&M) Agreement for Storm Water BMPs is approved by the City. *See MCM #4 Section 8 of the Tiffin SWMP for a Post-Construction Inspection & Maintenance Agreement for Storm Water BMPs Template to use as guidance for developing the Inspection & Maintenance (I&M) Agreement. Post-Construction I&M Agreements for Storm Water BMPs shall be developed in accordance with the latest edition of the Ohio Department of Natural Resources (ODNR) Division of Soil and Water Conservation "Rainwater and Land Development Manual" or the US EPA's Natural Menu of BMPs. Legally binding I&M Agreements must reflect:*
 - Specific post-construction storm water BMPs approved for the property
 - BMP-specific inspection and maintenance requirements, and
 - Appropriate schedules for each facility (minimum of annual inspections)
 - Reporting schedules to submit inspection documentation to the City.

B. Project Site Owner Preparation

- 1) Review Chapter 909 of City of Tiffin Codified Ordinances.
- 2) Check that the Project Closeout submittal includes the following documents:
 - One (1) copy of completed Notice of Termination (NOT) from Ohio EPA including final property description
 - One (1) copy of completed City of Tiffin Notice of Termination (NOT)
 - One (1) set of finalized as-built drawings of stormwater BMPs certified by a Professional Engineer
 - One (1) copy of an unsigned Post-Construction Inspection & Maintenance (I&M) Agreement

for Storm Water BMPs– the final version will need to be signed, notarized and recorded after the City Engineer review

C. City Review Procedure

- 1) City Engineer to manage project closeout process.
- 2) Review NOTs (City of Tiffin NOT and Ohio EPA NOT) and final as-built drawings for completeness.
- 3) Coordinate final site inspection with project site owner.
 - a) Walk through the site and inspect the permanent storm Water BMPs for conformance with approved SWPPP. Ensure that temporary controls are removed.
 - b) If temporary/permanent controls have not been constructed per approved plans, site is not stabilized, or temporary controls have not been removed, the project site owner must request a new final inspection after necessary revisions have been made.
- 4) Review Post-Construction Inspection & Maintenance (I&M) Agreement for Storm Water BMPs. If approved, sign and date agreement. If not approved, return to project site owner for revisions with comments.

D. City Records

- 1) Keep records of as-builts, NOTs and I&M agreements.



V. ENFORCEMENT ACTION AND ESCALATION

A. Purpose

Enforcement measures are used to notify the Permittee/project site owner when an active construction project is not in compliance with Chapter 909 of the City of Tiffin Codified Ordinances. These procedures are to be used as a guideline to establish standards for enforcement action and escalation but may require the City Engineer to use their professional judgement to deviate from the typical policy.

B. Enforcement Measures

The City is authorized to exercise the use of the following enforcement measures:

- 2) **Verbal, Email, Letter, etc.** — Communication occurring prior to enforcement action to provide comments or recommendations regarding any BMP deficiencies or to convey the status of compliance with regulatory requirements.
 - a) Includes discussions of BMP deficiencies or other potential for corrective action by the City Engineer as recorded in the Site Inspection form.
 - b) Ample warning and communication should occur prior to issuing a Notice of Violation (NOV) or a Stop Work Order (SWO).
- 3) **Notice of Violation (NOV)** — A formal written notice that informs the Permittee/project site owner that the regulatory requirements have been violated.
 - a) Demands activities causing the violations or non-compliance are corrected, including restitution for damages (if necessary).
 - b) Generally issued when a warning is disregarded as documented by the City Engineer.
 - c) May require payment of fee in accordance with Chapter 909.
- 4) **Stop Work Order (SWO)** — A formal written non-monetary notice that informs the Permittee/project site owner that a condition or regulatory requirement has been violated and demands that the entire project cease.
 - a) All unsafe conditions, storm water BMPs, or any disruption to the public Right of Way or affected private property be restored to acceptable use prior to leaving the project site.
 - b) Generally issued when multiple NOV's have been issued for the project site and disregarded.
 - c) May revoke the Construction Site Runoff Control Permit and hold any contracts held with the City.
 - d) Remains in effect until the required corrective actions have been completed.

C. Enforcement Procedure

Enforcement action or escalation by the City Engineer is justified for a Permittee/project site owner under the following conditions:

- 1) **Initiating construction without Construction Site Runoff Control Permit:** Land disturbance occurs on any project site without proper federal, state or local permits.
 - a) City Engineer to issue a NOV Letter and SWO to be posted on-site.
 - b) Notify the project site owner verbally or in writing the reasoning behind the enforcement actions and the process they shall follow to obtain approval for construction activity.
- 2) **First noncompliant site inspection** – Site inspection for the active project site shows noncompliance with regulatory requirements.
 - a) Notify the Permittee/project site owner verbally or in writing of the nature of the violation and the required corrective actions.
 - b) Perform a follow-up site inspection no later than one (1) week following the last inspection.
- 3) **Second noncompliant site inspection and issuance of NOV Letter:** Follow-up site inspection is completed and project site continues to show noncompliance.
 - a) Issue first NOV letter to the Permittee/project site owner and collect fee (if applicable).
 - b) Perform a follow-up site inspection no later than thirty (30) days following the last inspection.
- 4) **Second NOV Letter:** Follow-up site inspection is completed and project site has not achieved compliance within thirty (30) days from issuance of first NOV as defined in ORC 307.79 Section E.
 - a) Issue second NOV letter to the Permittee/project site owner and collect fee (if applicable).
 - b) Perform a follow-up site inspection no later than thirty (30) days following the last inspection
- 5) **Third NOV Letter and issuance of SWO:** Follow-up site inspection is completed and project site has not achieved compliance within thirty (30) days from issuance of second NOV.
 - a) Issue SWO and provide the Permittee/project site owner a copy of the SWO.

D. Documentation

The following will be the minimum documentation for enforcement action and escalation and should be maintained for five (5) years following project closeout:

- 1) Copies of all enforcement actions and issued fines, NOVs, SWOs, or other enforcement measures.
- 2) Any correspondence with the Permittee/ project site owner in regards to the above

MCM #4 – CONSTRUCTION SITE RUNOFF CONTROL

Section 4 – SWPPP Checklist for Construction Activities



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Construction General Permit OHC000005

Storm Water Pollution Prevention Plan Checklist

State of Ohio Environmental Protection Agency
Division of Surface Water

Facility Name:	Date Received:
SWP3 Reviewer:	Date Reviewed:

Part III.G.1 - Site Description				
Does the SWP3 describe, show or include:	Y	N	N/A	Comments
(a) the nature and type of construction activity (e.g., low density residential, shopping mall, highway, etc.)?				
(b) the area of the site to be disturbed				
(c) the impervious area and percent imperviousness created by the construction activity?				
(d) storm water calculations, (pre and post-construction volumetric runoff coefficients and resulting water quality volume; design details for post-construction storm water facilities and pretreatment practices (e.g. drainage areas, capacities, elevations, outlet details and drain times) and if applicable, explanation of the use of existing post-construction facilities?				
(e) any existing data describing the soil?				
any information on the quality of the storm water discharge from the construction site?				
(f) any information about prior land uses at the site (e.g., was the property used to manage solid or hazardous waste)?				
(g) a description of the condition of on-site streams (e.g. prior channelization, bed instability or headcuts, channels on public maintenance, or natural channels)?				
(h) an implementation schedule which describes the sequence of major construction operations (i.e., grubbing, excavating, grading, utilities infrastructure installation and others) and the implementation of erosion, sediment and storm water management practices or facilities to be employed during each operation of the sequence?				
(i) the name(s) or location(s) of the initial and subsequent surface water bodies receiving the storm water discharge?				
the areal extent and description of the wetland or other special aquatic sites which will be disturbed and/or will receive the storm water discharges?				
(j) a detail drawing of a typical individual lot showing sediment and erosion controls or storm water control practices? (This does not remove responsibility to designate control practices in a SWP3 for critical areas such as steep slopes, stream banks, drainage ways & riparian zones.)				
(k) the location and description of storm water discharges associated with dedicated asphalt and/or concrete batch plants covered by the NPDES construction storm water general permit?				
(l) a cover page identifying the name and location of the site, the name and contact information for site operators and SWP3 authorization agents as well as preparation date, start date, and completion date?				
(m) a log documenting grading & stabilization activity as well as SWP3 amendments that occur after construction commencement?				

Part III.G.1.n - Site Map Requirements				
Does the SWP3 site map show:	Y	N	N/A	Comments
(i) limits of earth-disturbing activity of the site including associated off-site borrow or spoil areas that are not addressed by a separate NOI and associated SWP3?				
(ii) soils types depicted for all areas of the site, including locations of unstable, highly erodible and/or known contaminated soils?				
(iii) existing and proposed contours to delineate drainage watersheds expected during and after major grading activities as well as the size of each drainage watershed, in acres?				
(iv) location of any delineated boundary for required riparian setbacks?				
(v) conservation easements for areas designated as open space, preserved vegetation or otherwise protected from earth disturbing activities with a description of any associated temporary or permanent fencing or signage?				
(vi) surface water locations including springs, wetlands, streams, lakes, water wells, etc., on or within 200 feet of the site, including the boundaries of wetlands or stream channels and first subsequent named receiving water(s) the permittee intends to fill or relocate for which the permittee is seeking approval from the Army Corps of Engineers and/or Ohio EPA?				
(vii) the location of existing and planned buildings, roads, parking facilities, and utilities?				
(viii) include the location of all erosion and sediment control practices, including the location of areas likely to require temporary stabilization during site development?				
(ix) location of sediment traps and basins noting their sediment storage volume and dewatering (detention) volume and contributing drainage area?				
(x) location of permanent storm water management practices (new & existing) as well as pretreatment practices to be used to control pollutants in storm water after construction operations have been completed along with the location of existing and planned drainage features (e.g. catch basins, culverts, ditches, swales, surface inlets and outlet structures)?				
(xi) areas designated for the storage or disposal of solid, sanitary, and toxic wastes (including dumpster areas), areas designated for cement truck washout, and areas for vehicle fueling?				
(xii) location of designated construction entrances where the vehicles will access the construction site?				
(xiii) location of any areas of proposed floodplain fill, floodplain excavation, stream restoration or known temporary or permanent stream crossings?				

Part III.G.2 - Sediment & Erosion Controls				
(a) Preservation Methods	Y	N	N/A	Comments
(1) Has every effort been made to preserve the natural riparian setback adjacent to streams or other surface water bodies? (E.g. preserving existing vegetation, vegetative buffer strips, and existing soil profile and topsoil; and designating tree preservation areas or other protective clearing or grubbing practices.				

OHC000005 – SWP3 Checklist

(2) Have efforts been made to phase in construction activities to minimize the amount of land disturbance at one time?				
(3) Will any portions of the site be left undisturbed (e.g., tree preservation areas)?				
(b) Erosion Control Practices	Y	N	N/A	Comments
(1) Does the SWP3 include erosion controls to provide cover over disturbed soils?				
(2) Does the SWP3 describe the control practices used to re-establish suitable cover (e.g. vegetation) on disturbed areas after grading?				
(3) Does the SWP3 specify the types of stabilization measures to be employed for any time of the year?				
(b)(i) & Part II.B (Table 2): Temporary Stabilization	Y	N	N/A	Comments
For disturbed areas within 50 feet of a stream remaining dormant for over 14 days, will temporary erosion controls be applied within 2 days?				
For disturbed areas over 50 feet away from a stream remaining dormant for over 14 days, will temporary erosion controls be applied within 7 days?				
For disturbed areas that will be left idle over winter, will temporary erosion controls be applied prior to onset of winter weather?				
(b)(i) & Part II.B (Table 1): Permanent Stabilization	Y	N	N/A	Comments
For disturbed areas within 50 feet of a stream at final grade, will permanent erosion controls be applied within 2 days of reaching final grade?				
For disturbed areas remaining dormant for over 1 year or at final grade, will permanent erosion controls be applied within 7 days of the most recent disturbance?				
(b)(ii) Permanent Stabilization of Conveyance Channels				
Will operators undertake special measures to stabilize channels and outfalls and prevent erosive flows?				
(c) Runoff Control Practices - Does the SWP3 incorporate	Y	N	N/A	Comments
(1) measures to reduce flow rates on disturbed areas (e.g., riprap, rock check dams, & pipe slope drains)?				
(2) measures to divert runoff from disturbed areas and steep slopes?				
(d) Sediment Control Practices	Y	N	N/A	Comments
(1) Will sediment control devices be implemented for all areas remaining disturbed for over 14 days?				
(2) Are detail drawings of the sediment controls to be used included in the SWP3?				
(d)(i) Timing of Installing Sediment Controls.	Y	N	N/A	Comments
Does the SWP3 specify that sediment controls will be implemented prior to grading and within 7 days of grubbing?				
Does the SWP3 require additional sediment controls or modifications for changing slopes and topography?				
(d)(ii) Sediment Settling Ponds	Y	N	N/A	Comments
Does the SWP3 include the use of a sediment settling pond? <i>NOTE: This is required for areas with concentrated runoff or when the capacity of sediment barriers or inlet protection has been exceeded.</i>				
Are alternatives proposed in lieu of a required settling pond? These must be equivalent to a sediment settling pond effectiveness.				
Is the dewatering volume appropriately sized (67 yd ³ or 1800 ft ³ per acre of drainage area)?				

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Is the depth of the dewatering volume for each sediment settling pond ≤ 5 feet?				
Will the dewatering volume drain in 48 hours to 72 hours?				
Is a skimmer specified in the SWP3?				
Has a sediment storage zone volume been provided (≥ 1000 ft ³ per disturbed acre or based on RUSLE calculations)?				
Is the length to width ratio of the settling pond $\geq 2:1$? <i>NOTE: Greater distances from storm water inlet of the pond to the outlet increase effectiveness of sediment settlement.</i>				
Is clean-out of the sediment storage zone specified in the SWP3? (E.g. when sediment occupies 50 percent of the sediment storage zone and prior to conversion to a post-construction BMP.)				
Have public safety concerns been considered in pond design and alternative sediment controls?				
(d)(iii) Sediment Barriers & Diversions	Y	N	N/A	Comments
Are sediment barriers or diversions used to intercept sheet flow? <i>NOTE: Sediment barriers are suitable for sheet flow and not for concentrated storm water flow.</i>				
Are alternative sediment barriers, used in lieu of silt fence, at least 12-inches in diameter?				
Are diversions used to keep runoff away from steep slopes or concentrated flow?				
Do sediment barriers meet the maximum drainage area limits of table 3 or the Rainwater and Land Development manual?				

(d)(iv) Inlet Protection	Y	N	N/A	Comments
Do drain inlets and curb inlets drain into a sediment settling pond?				
Inlets not connected to a sediment settling pond are limited to runoff from \leq one acres?				
Does inlet protection meet acceptable standards?				
(d)(v) Stream Protection	Y	N	N/A	Comments
No structural sediment controls are proposed for use in streams.				
Have efforts been made to limit construction disturbance or activities on stream banks, and the width or number of stream crossings? <i>NOTE: If work along a stream bank is necessary, a non-erodible pad or non-erodible stream diversion dams (sand bags) must be installed. If stream crossings are necessary, a non-erodible stream crossing must be installed.</i>				

Part III.G.2.e – Post-Construction Storm Water Management				
	Y	N	N/A	Comments
Does the SWP3 include the installation of a structural post-construction BMP. <i>NOTE: Projects that do not significantly grade or impact pervious areas or install impervious surface such as park lands do not require the installation of post-construction BMPs.</i>				
Is the construction activity a linear project (e.g., pipeline or utility line installation) that does not result in the installation of additional impervious surface? <i>NOTE: If yes, then the installation of structural post-construction BMPs is not required.</i>				
Maintenance Plans	Y	N	N/A	Comments
Has a long-term maintenance plan been developed or included in the SWP3 for maintenance of the structural post-construction BMP?				

<i>NOTE: The long-term maintenance plan must be developed and provided to the post-construction site operator.</i>				
Does the long-term maintenance plan include the following?				
(1) an entity designated for storm water inspection and maintenance responsibilities?				
(2) the routine and non-routine maintenance tasks to be undertaken?				
(3) a schedule for inspection and maintenance?				
(4) any necessary legally binding maintenance easements and agreements?				
(5) construction drawings or excerpts showing the facility plan view and profile, as well as details of the outlet(s)?				
(6) a map showing all access and maintenance easements?				
(7) a description of how pollutants will be removed and disposed of?				
Does the SWP3 include a structural post-construction BMP designed to release the water quality volume over a 24-hour to 48-hour time period?				
Calculation of Water Quality Volume (WQv)	Y	N	N/A	Comments
Is the calculation of the WQv shown? With correct values used for the following:				
(a) runoff coefficient (Rv), where $Rv = 0.05 + 0.9i$ i = ratio of impervious surface				
(b) precipitation depth (P = 0.9 inches)?				
(c) and the drainage area (A) to the BMP?				
If the structural post-construction BMP will be used for sediment storage, does it include a sediment accumulation volume of at least 20% of the WQv?				
If a regional storm water BMP will be used to meet the post-construction requirements, does it:				
(1) meet the design requirement for treating the WQv?				
(2) have a legal agreement established with the BMP owner for long-term maintenance?				
Table 4a Do extended detention practices show an appropriate minimum drain time that shall not discharge more than the first half of the WQv in less than one-third of the drain time? <i>NOTE: Dry = 48 hr; Wet, wetland, permeable pavement, underground storage, and sand/media filtration min. 24, <72 hr.</i>				
Table 4a Do extended detention practices show appropriate design features? <ul style="list-style-type: none"> Wetland and wet basins: permanent pool = 1WQv Dry, wet and wetland: sediment storage = 0.2WQv Dry: forebay and micro-pool or acceptable pretreatment and a protected outlet. Underground storage: acceptable pretreatment capable of $\geq 50\%$ TSS.				
Table 4b Do planned infiltrating practices show an appropriate maximum drain time? Note: Bioretention and infiltration basin ≤ 24 ; infiltration trench, permeable pavement and underground storage ≤ 48 hours.				
Table 4b Do planned infiltrating underground storage practices (for credit) show acceptable of pretreatment of $\geq 80\%$ TSS.				
Small Construction Activities ≤ 2 Acres If the SWP3 proposes to use an alternative BMP instead of a Table 4a or 4b practice,	Y	N	N/A	Comments

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(1) does the SWP3 provide justification on why a standard BMP is infeasible and their use would prevent the project?				
(2) Is the alternative BMP acceptable to the local MS4 or jurisdiction?				
Transportation Projects	Y	N	N/A	Comments
For (public road construction activities), are the post-construction BMPs designed consistent with the Ohio Department of Transportation's "Location and Design Manual, Volume Two?"				
Offsite Mitigation of Post-Construction	Y	N	N/A	Comments
If the SWP3 is proposing to use an offsite post-construction BMP, then does the SWP3 include:				
(1) a maintenance agreement or policy is established to ensure operations and treatment long-term?				
(2) the offsite location discharges to the same HUC-12 watershed unit?				
(3) the mitigation ratio of the WQv is 1.5 to 1 or the WQv at the point of retrofit, whichever is greater?				
Previously Developed Areas (Redevelopment)	Y	N	N/A	Comments
For construction of a previously developed area, was one of the following options used to as a post-construction practice:				
(a) 20% net reduction in the site's volumetric runoff coefficient?				
(b) a BMP sized to treat 20% of the WQv for the previously developed area using a standard BMP from Tables 4a or 4b?				
For construction involving both previously developed and undeveloped land, was equation 3 shown to calculate the WQv? $WQv = 0.9 \text{ inches} * A * [(Rv_1 * 0.2) + (Rv_2 - Rv_1)] / 12$				
Runoff Reduction Practices:	Y	N	N/A	Comments
If the SWP3 proposes to use runoff reduction methods to reduce the WQv or size of post-construction practices, are one of the following acceptable practices being used with appropriate credit? <ul style="list-style-type: none"> • Green Roof • Impervious Surface Disconnection • Rainwater Harvesting • Bioretention Area/Cell • Infiltration Basin • Infiltration Trench • Permeable Pavement (Infiltration) • Underground Storage (Infiltration) • Grass Swale • Sheet Flow to Filter Strip Sheet Flow to Conservation Area				
Do practices meet Ohio EPA's Rainwater and Land Development Manual specifications?				
Is any runoff reduction practice(s) used to meet the groundwater recharge requirements for the Big Darby Creek Watershed shown in recharge calculations?				
Is any runoff reduction practice used meet post-construction requirement for areas that cannot drain to a structural practice (e.g., backyards of residential lots) shown in calculations?				
Alternative Post-Construction BMPs	Y	N	N/A	Comments

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If the SWP3 proposes to use alternative post-construction BMPs to those of Tables 4a and 4b practices, has approval been obtained from Ohio EPA? (Attach correspondence & Alt. Practice Form)				

Part III.G.2.f - Surface Water Protection				
	Y	N	N/A	Comments
Does the site contain any streams, rivers, lakes, or wetlands?				
If so, has the U.S. Army Corps of Engineers been contacted for a determination of impacts requiring Clean Water Act 401 or 404 permitting? (Attach any reference numbers)				
For storm water discharges from BMPs into wetlands, have appropriate BMPs been proposed to treat and diffuse flows?				

Part III.G.2.g - Other Controls				
(Non-sediment pollutant controls, tracking, dust, wastes, dewatering, and contaminated sediments)				
Handling of Toxic or Hazardous Materials	Y	N	N/A	Comments
(1) The SWP3 considers and addresses potential toxic or hazardous wastes and their proper disposal?				
(2) The SWP3 addresses the need and methods to exclude waste materials or wastewater (e.g. from washout) from storm water or waters of the state? and of responding to chemical spills and leaks (e.g. directs to onsite Spill Prevention Control and Countermeasure (SPCC) plan).				
(3) The SWPPP addresses potential materials and responses to chemical spills and leaks (e.g. directs to onsite Spill Prevention Control and Countermeasure (SPCC) plan).				
Waste Disposal	Y	N	N/A	Comments
Covered and leak-proof containers are planned for disposal of debris, trash, hazardous or petroleum wastes?				
As applicable, the SWP3 states that all waste will comply with applicable state or local waste disposal requirements and provisions address issues such as open burning, sanitary wastes and construction and demolition debris?				
Clean Hard Fill	Y	N	N/A	Comments
(1) If disposal of bricks, hardened concrete, and/or soil is planned, are these materials required to be free from contamination that may leach to waters of the state?				
(2) If clean construction wastes will be disposed into the property, have are there any local prohibitions from this type of disposal?				
Construction Chemical Compounds	Y	N	N/A	Comments
(1) Does the SWP3 designate areas used for mixing or storage of compounds such as fertilizers, lime, asphalt, or concrete?				
(2) If so, are these areas located away from watercourses, drainage ditches, field drains, or other storm water drainage areas?				
Equipment Fueling & Maintenance	Y	N	N/A	Comments
(1) Does the SWP3 designate areas used for fueling or performing vehicle maintenance that provide separation from watercourses, drainage ditches, field drains, or other storm water drainage areas?				
(2) If applicable, has a spill prevention control and countermeasures (SPCC) plan been developed?				

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<p><i>NOTE: An SPCC plan is required for sites which have the following:</i></p> <ul style="list-style-type: none"> • Aboveground oil/fuel storage capacity of more than 1,320 gallons in all containers 55 gallons or greater in volume, or • Underground oil/fuel storage capacity of more than 42,000 gallons. 				
Concrete Wash Waters	Y	N	N/A	Comments
(1) Does the SWP3 designate areas used for concrete chute cleaning or other concrete wash waters that are these areas located away from watercourses, drainage ditches, field drains, or other drainage areas?				
Trench & Ground Water Control	Y	N	N/A	Comments
Does the construction site have an onsite trench or pond that must be dewatered?				
If so, does the SWP3 call for the discharge of potentially turbid water through a filter bag, sump pit, or other sediment removal device?				
Contaminated Soils	Y	N	N/A	Comments
If applicable, does the SWP3 address proper handling and disposal of soils contaminated by petroleum or other chemical spills? <i>NOTE: Contaminated soils must be treated and/or disposed in Ohio EPA approved solid waste management facilities or hazardous waste treatment, storage or disposal facilities.</i>				
If the facility contains contaminated soil, which of the following practices will be used to prevent contamination from being released?				
(1) Berms, trenches, and pits used to collect contaminated runoff and prevent discharges;				
(2) Runoff is planned to be pumped into a sanitary sewer (requires prior approval of the sanitary sewer operator) or into a container for transport to an appropriate treatment/disposal facility;				
(3) Areas of contamination are planned for covering with tarps or other methods that prevent storm water from coming into contact with the material.				
Spill Reporting Requirements	Y	N	N/A	Comments
(1) The SWP3 describes procedures in the event of a small release (less than 25 gallons) of petroleum waste? <i>NOTE: Petroleum-based and concrete curing compounds must have special handling procedures.</i>				
(2) The SWP3 describe what to do in the event of a larger release (25 or more gallons) of petroleum waste? <i>NOTE: Ohio EPA (1-800-282-9378), the local fire department, and the local emergency planning committee (LEPC) must be contacted within 30 minutes of a spill of 25 or more gallons.</i>				
Open Burning	Y	N	N/A	Comments
(1) If applicable, does the SWPPP restrict open burning to legal limits (as defined in OAC 3745-19)?				
Dust Controls/Suppressants	Y	N	N/A	Comments
(1) If dust suppressants are proposed in the SWP3, are application areas away from catch basins for storm sewers or other drainage ways? <i>NOTE: Used oil may not be used as a dust suppressant</i>				
Air Permitting Requirements	Y	N	N/A	Comments
(1) If applicable (e.g. mobile concrete batch plants, mobile asphalt plants, concrete crushers, and large generators) have appropriate				

OHC000005 – SWP3 Checklist

measures been taken to ensure that all air pollution permits have been obtained?				
(2) In the case of applicable restoration or demolition projects, a notification will be submitted to Ohio EPA, Division of Air Pollution Control to determine if asbestos corrective actions are required?				
Process Wastewater/Leachate Management	Y	N	N/A	Comments
All process wastewaters (e.g., equipment washing, leachate associated with on-site waste disposal, and concrete wash-outs) be collected and disposed of properly (e.g., to a publicly-owned treatment works)? <i>NOTE: The NPDES construction storm water general permit only authorizes the discharge of storm water and certain uncontaminated non-storm waters. The discharge of non-storm waters to waters of the state may be in violation of local, state, and federal laws or regulations.</i>				
Additional Concerns	Y	N	N/A	Comments
For construction activities involving the installation and/or replacement of a centralized sanitary system, (including sewer extensions) or a sewerage system (except those serving one, two, and three family dwellings) and potable water lines, a PTI application was submitted to Ohio EPA? <i>NOTE: Coverage under the NPDES construction storm water general permit does not alone authorize the installation of such sanitary sewerage systems or potable water lines.</i>				
Does the SWP3 include measures for implementing good housekeeping practices?				
Does the SWP3 promote the use of protected storage areas for industrial or construction materials to minimize exposure of such materials to storm water?				

Part III.G.2.h - Maintenance				
	Y	N	N/A	Comments
The SWPPP describes adequate repair and maintenance procedures for each temporary and permanent control practice planned in order to ensure continued function.				
Part III.G.2.i - Inspections				
	Y	N	N/A	Comments
The SWP3 states that only “qualified inspection personnel” will perform the inspections?				
The SWP3 requires construction site inspections to be performed once every 7 calendar days; and after every rain event ≥ 0.5 -inch in a 24-hour period by the end of next calendar day (excluding non-working weekends & holidays)?				
The SWP3 states that the inspection frequency may be reduced to monthly for dormant sites if:				
<ul style="list-style-type: none"> the entire site is temporarily stabilized or 				
<ul style="list-style-type: none"> runoff is unlikely due to weather conditions for extended periods of time (e.g., frozen ground)? 				
Does the SWP3 include an inspection checklist (to be completed and signed after every inspection) that includes:				
<ul style="list-style-type: none"> the inspection date; names, titles, and qualifications of inspectors; 				

OHC000005 – SWP3 Checklist

<ul style="list-style-type: none"> • weather for the period since the last inspection (e.g., beginning, duration, & rainfall amount of each storm event and whether a discharge occurred); • weather and a description of any discharges occurring at the time of the inspection; • location(s) of discharges of sediment or other pollutants from the site; • location(s) of BMPs that need to be maintained; • location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location; • location(s) where additional BMPs are needed that did not exist at the time of inspection; • and corrective action required including any changes to the SWP3 necessary and implementation dates 				
The SWP3 details the areas to inspect (disturbed areas; material storage areas; erosion and sediment controls; discharge locations; and vehicle entrance/exit locations)?				
Does the SWP3 state that inspection records will be kept for 3 years after termination of construction activities?				
Does the SWP3 specify the time within which BMPS must be repaired, maintained or a new functional BMP installed? (Within 3 days of inspection for non-sediment pond BMPs, and within 10 days of inspection for sediment ponds to be repaired or cleaned out and replacing a BMP not meeting the intended function or missing from the site.)				

MCM #4 – CONSTRUCTION SITE RUNOFF CONTROL

Section 5 – Construction Site Runoff Control Permit Application



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 <div style="text-align: center;"> CONSTRUCTION SITE RUNOFF CONTROL PERMIT APPLICATION </div>	<p style="text-align: center;">**OFFICE USE**</p> <p>PERMIT #: _____</p> <p>DATE ISSUED: _____</p>
<p>City of Tiffin Engineer's Office 51 E Market St, Tiffin, OH 44883 (419) 448-5425 * tiffinengineers@tiffinohio.gov</p>	
<p><i>Under Chapter 909 of City of Tiffin Codified Ordinances, a Construction Site Runoff Control Permit is required for all construction activities that result in a land disturbance of one (1) or more acres, or less than one (1) acre of land as part of a larger development project that will ultimately disturb one (1) or more acres of land.</i></p>	

CONSTRUCTION SITE RUNOFF CONTROL PERMIT FEE SCHEDULE

Administration Fee: \$250.00

This fee covers costs incurred by the City for administration and periodic inspections of the construction site over the duration of the project. This fee is due at the time of application submittal.

Application Review Fee: \$300.00 for up to 2 hours of review by City Engineer, an additional \$150.00 for each additional hour

This fee covers costs incurred by the City for the review of the application submittal. The initial \$300.00 is due at the time of application submittal and any additional time incurred for application review is due before the Permit is issued.

Performance Bond: \$1,000.00 or actual cost of construction of all Storm Water BMPs, whichever is greater

This bond will be due before the permit is issued, and must be accompanied by an itemized estimate of all Storm Water BMP construction costs associated with the project. It covers possible costs in the event the City is required to perform any work to bring the construction site into compliance with the approved plans and all applicable storm water laws and regulations.

NOTE: City of Tiffin Construction Site Runoff Control Permits will be issued for a two-year (24-month) term. Re-application or renewal may be required for projects exceeding this period as well as bond renewal.

(1) PROJECT INFORMATION		
Project Name:		
Address/Location:		
Owner:		
Telephone:		
(2) PERMITTEE CONTACT INFORMATION		
*All listed contacts must have the authority to perform revisions to the approved SWPPP.		
(a) Site Owner		
Contact Person:	Company:	
Address:		
Email:	Telephone:	
(b) Certified Storm Water Inspector:		
Contact Person:	Company:	
Certification Number:		
Email:	Telephone:	
(3) CO-PERMITTEE CONTACT INFORMATION		
*If applicable		
Contact Person:	Company:	
Address:		
Email:	Telephone:	
(4) DESIGN INFORMATION		
Total project area (acres):	Disturbed Area (acres):	Drainage Area (acres):
Is this project part of a larger development project that will ultimately disturb one (1) or more acres of land? <input type="checkbox"/> Yes <input type="checkbox"/> No		
(5) NATURE OF CONSTRUCTION ACTIVITIES		
Check the following that apply:		
<input type="checkbox"/> Single Family Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Utility <input type="checkbox"/> Highway/Road <input type="checkbox"/> Other:		
Brief Description of Project, including Storm Water BMPs:		
(6) PROJECT SCHEDULE		
Project Start Date:	Estimated Completion Date:	Estimated Final Stabilization Date:

(7) CERTIFICATION AND ACKNOWLEDGEMENT

I certify under penalty of law that this document and all attachments were prepared under my discretion or supervision and are not to the best of my knowledge and belief, true, accurate, and complete:

Signed By: _____ Title: _____ Date: _____

Printed Name: _____

****OFFICE USE****

Approved as submitted: YES / NO

By: _____ Date: _____

_____ Approved with the following stipulations:

_____ Disapproved with the following stipulations:

Submittal Checklist

- _____ Completed Construction Site Runoff Control Permit Application
- _____ Two (2) sets of design plans
- _____ Two (2) copies of SWPPP (signed/stamped by P.E., CPESC, or registered landscape architect)
- _____ Admin/Application Fees
Amount: \$550 + \$ _____
- _____ Itemized estimate of all Storm Water BMP construction costs
- _____ Performance Bond

MCM #4 – CONSTRUCTION SITE RUNOFF CONTROL

Section 6 – Storm Water Site Inspection Form



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CITY OF TIFFIN, OHIO

CONSTRUCTION SITE RUNOFF CONTROL STORM WATER SITE INSPECTION FORM

(1) GENERAL INFORMATION			
Project Name:		Construction Site Runoff Control Permit No.:	
Date and Time of Inspection:			
Inspector Name:			
Present Phase of Construction:			
Inspection Reason: <input type="checkbox"/> Initial <input type="checkbox"/> Routine <input type="checkbox"/> Complaint <input type="checkbox"/> Project Closeout <input type="checkbox"/> Follow-up <input type="checkbox"/> Other:			
(2) WEATHER INFORMATION			
Has there been a measurable storm event (0.25" or greater in 24 hours) since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Storm Start Date and Time:		Approximate Amount of Precipitation (in):	
Storm Duration (hrs):			
Weather at time of this inspection:		Temperature:	
<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain		<input type="checkbox"/> Sleet	
<input type="checkbox"/> Fog <input type="checkbox"/> Snowing <input type="checkbox"/> Sleet		<input type="checkbox"/> Other:	
Are there any storm water discharges at the time of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, describe:			
Have any land-disturbing activities occurred outside of the approved SWPPP? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, describe:			
(3) STORM WATER CONTROL MEASURES			
BMP/ Control Measure <small>*List all that appear on the approved SWPPP</small>	BMP Installed?	Maintenance Required?	Corrective Action Needed <small>*Initial date when Corrective Action was taken</small>
(1) Construction entrance	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(2) Silt fence/Perimeter controls	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(3) Inlet protection	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(4) Stockpile protection	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(5) Trash/litter containment	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(6) SWPPP on site	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(7) Discharge points free of sediment deposits	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(8) Non-active disturbed areas stabilized	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	



CITY OF TIFFIN, OHIO

CONSTRUCTION SITE RUNOFF CONTROL STORM WATER SITE INSPECTION FORM

STORM WATER CONTROL MEASURES (continued)			
BMP/ Control Measure <small>*List all that appear on the approved SWPPP</small>	BMP Installed?	Maintenance Required?	Corrective Action Needed <small>*Initial date when Corrective Action was taken</small>
(9) Washout facilities	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(10) Leak/spill protection	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(11) Inspection reports available	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(12) Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(13) Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(14) Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(15) Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(16) Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(17) Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(18) Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(19) Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(20) Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Notes/Comments:			

MCM #4 – CONSTRUCTION SITE RUNOFF CONTROL

Section 7 – Notice of Termination (NOT) Form



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CITY OF TIFFIN, OHIO CONSTRUCTION SITE RUNOFF CONTROL NOTICE OF TERMINATION (NOT) FORM

Submission of this NOT constitutes notice that the party identified below on this form is no longer authorized to discharge into state waters under the City of Tiffin Construction Site Runoff Control Permit.

Submit the completed form to the City of Tiffin City Engineer. All information must be provided on this form. There is no fee associated with submitting this form.

(1) PERMIT NUMBER: _____

(2) OHIO EPA GENERAL CONSTRUCTION PERMIT NUMBER: _____

(3) DATE OF NOTICE OF TERMINATION: _____

(4) APPLICANT INFORMATION:

Name: _____ Phone Number: _____

Address: _____

Affiliation: _____

(5) FACILITY / SITE LOCATION INFORMATION:

Facility Name: _____

Facility Address / Location: _____

(6) FINAL PROPERTY DESCRIPTION ATTACHED ☐ Yes

(7) AS-BUILT DRAWINGS OF STORMWATER BMPs ATTACHED ☐ Yes
(Must be certified by a State of Ohio Professional Engineer)

(8) REASON FOR TERMINATION:

____ Transfer of Ownership ____ Cease to Discharge ____ Facility Closed

____ Project Completed

(If Reason for Termination, was I&M Agreement submitted? ☐ Yes ☐ No)

____ Individual Permit Obtained ____ Other: _____

(9) CERTIFICATION

I certify under penalty of law that all elements of the storm water pollution prevention plan have been completed, the disturbed soil at the identified facility have been finally stabilized and temporary erosion and sediment control measures have been removed, or will be removed at an appropriate time; or that all storm water discharges associated with construction activity from the identified facility that are authorized by the above referenced City of Tiffin Construction Site Runoff Control Permit have otherwise been eliminated; or that I am no longer the operator of the facility. I understand that by submitting this NOT, I am no longer authorized to discharge storm water



CITY OF TIFFIN, OHIO CONSTRUCTION SITE RUNOFF CONTROL NOTICE OF TERMINATION (NOT) FORM

associated with construction activity by the City of Tiffin Construction Site Runoff Control Permit, and that discharging pollutants in storm water associated with construction activity to waters of the state is unlawful under City of Tiffin Ordinance Chapter 909 where the discharge is not authorized by a City of Tiffin Construction Site Runoff Control Permit.

Name (printed): _____

Date: _____

Signature: _____

****This Section for Office Use Only****

Approved as submitted: YES / NO

By (printed): _____

Signature: _____

Date: _____

NOT Checklist

- _____ Ohio EPA NOT including Final Property Description
- _____ As-Built Drawings of Stormwater BMPs (certified by P.E.)
- _____ Final City Site Inspection Performed
- _____ Approved Post-Construction I&M Agreement for Stormwater BMPs

MCM #4 – CONSTRUCTION SITE RUNOFF CONTROL

Section 8 – Post-Construction Inspection & Maintenance Agreement Template for Storm Water BMPs



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POST-CONSTRUCTION INSPECTION AND MAINTENANCE AGREEMENT FOR STORM WATER BMPs

PLEASE NOTE:

This Inspection and Maintenance Agreement template is for use in conjunction with the requirements of Chapter 909 of the City of Tiffin Codified Ordinances to ensure the long term operation, maintenance, and funding of storm water best management practices (BMPs).

This agreement template applies to existing, site specific BMPs and available design records to facilitate future operation and maintenance conditions.

This Inspection and Maintenance Agreement, made this ____ day of _____ 20____, by and between _____, (hereinafter referred to as the "Owner") and the City of Tiffin (hereinafter referred to as the "City"), provides as follows:

WHEREAS, the Owner is responsible for certain real estate within the City of Tiffin, Ohio known as Permanent Parcel No. _____ and described on the attached Exhibit A that is developed as _____ (hereinafter referred to as the "Property"); and,

WHEREAS the Owner currently operates a permanent Storm Water Facility (hereinafter referred to as the "Facility") consisting of the following Post-Construction Storm Water Best Management Practices (BMPs): storm water management basins; post-construction water quality features; storm sewer systems leading thereto; and any appurtenances integral to the proper operation of such items; and,

WHEREAS, to comply with **Chapter 909**, Storm Water Management Regulations, of the City of Tiffin Codified Ordinances pertaining to this Facility, the Owner agrees to maintain the Storm Water Best Management Practices for the above noted project in accordance with the terms and conditions hereinafter set forth.

NOW, THEREFORE, for and in consideration of the mutual covenants and undertaking of the parties, the parties hereby agree as follows:

A. INITIAL INSPECTION

The Owner shall provide an initial Annual Inspection Report (see Section C) of all existing Post-Construction Storm Water BMPs, prepared by a storm water certified person (e.g. P.E., CESSWI, CPESC) and as approved by the City Engineer, to the City within 60 days of this agreement or prior to March 1, 2021, whichever is later. If the Owner possesses the Certified As-Built of existing Post Construction Storm Water BMPs, then the Owner will provide a copy of these Certified As-Built to the City Engineer with the initial Annual Inspection Report. In evaluating either this certification or the on-site conditions of the existing Facility, the Tiffin City Engineer may require the submission of a new (partial or full) set of storm water calculations if he/she determines that the Post-Construction Storm Water BMP design was altered significantly or that the Post-Construction Storm Water BMP is not operating effectively.

B. MAINTENANCE PLANS FOR THE STORM WATER BEST MANAGEMENT PRACTICES

1. The Owner agrees to maintain in perpetuity, commencing with the signing of this agreement, all Post-Construction Storm Water BMPs in accordance with approved Maintenance Plans listed in Section B.2 below and in a manner that will permit the Post-Construction Storm Water BMPs to perform the purposes for which they were designed and constructed. This maintenance requirement includes all pipes and channels built to convey storm water to the Post-Construction Storm Water BMPs, as well as structures, improvements, and vegetation provided to control the quantity and quality of the storm water. Pollutants removed from the storm water BMPs must be properly disposed of in accordance with all applicable Local, State and Federal Regulations.
2. The Owner shall provide a Maintenance Plan for each Post-Construction Storm Water BMP. The maintenance plans shall include a schedule for regular maintenance. The Owner shall maintain, update, and store the maintenance records for the Post-Construction Storm Water BMPs. The minimum specified Maintenance Plans for each Post-Construction Storm Water BMP are as follows:
 - a) Storm Water Pond Maintenance. To be completed MONTHLY.
 - 1) Remove floating debris.
 - 2) Remove woody vegetative growth from pond area including embankments.
 - 3) Remove trash and/or accumulated sediment.
 - 4) Remove obstructions in orifices and/or outlets.
 - b) Storm Water Pond Maintenance. To be completed ANNUALLY.
 - 1) Repair erosion to outfall or spillway.
 - 2) Repair and/or replace damaged structures, such as catch basins, risers, pipes, and headwalls.
 - 3) Repair animal burrows and/or other leaks in the dam structures.
 - 4) Remove debris from overflow spillway and grates.
 - 5) Mow embankments and remove woody vegetation on embankments.
 - 6) Inspect and remove invasive plants.
 - 7) Dredge pond on a 3-year to 7-year cycle or as necessary to retain design capacity.
 - c) Infiltration Trench Maintenance. To be completed MONTHLY.
 - 1) Remove debris and or sediment from inlet and outlet pipes.
 - 2) Minimize heavy equipment, including mowers, in the vegetated areas to reduce compaction.
 - 3) Check observation wells 72 hours after rain events twice a year to ensure dewatering between storms is taking place at the facility. Repair as necessary to ensure functionality.
 - 4) Repair washed-out/damaged check dams.

- d) Infiltration Trench Maintenance. To be completed ANNUALLY.
 - 1) Remove sediment in sediment traps and pretreatment swales
 - 2) Check and remove any tree cover over trenches.
 - 3) Remove any aggregate (soil/mineral based) deposits.
 - e) Bioretention Area Maintenance. To be completed MONTHLY.
 - 1) Minimize heavy equipment, including mowers, in the vegetated areas to reduce compaction.
 - 2) Remove and replace any diseased or dead plant material. If specific species are not successful in the bioretention area, replace as appropriate to ensure full vegetation as designed.
 - 3) Remove weeds/invasive species.
 - f) Bioretention Area Annual Maintenance. To be completed ANNUALLY.
 - 1) Replace mulch at a depth of no greater than 3" and cover the entire area.
 - 2) Remove compacted mulch prior to new mulch placement.
 - 3) Repair any areas that have eroded.
 - 4) Ensure cell is dewatering within 1.66 days or 40 hours as required by the Ohio EPA and not bypassing facility. Repair as necessary to ensure functionality.
 - g) Maintenance Plans for all Storm Water Best Management Practices with decentralized design criteria shall be developed to comply with the latest edition of the Ohio Department of Natural Resources Division of Soil and Water Conservation "Rainwater and Land Development Manual" or similar document of applicable Best Management Practices published by the State of Ohio.
3. The Owner shall perform all maintenance in accordance with the above Maintenance Plans and shall complete all repairs identified through regular inspections, and any additional repairs as requested in writing by the City of Tiffin.

C. INSPECTION AND REPAIRS OF STORMWATER BEST MANAGEMENT PRACTICES

- 1. For the service life of the facility, the Owner shall inspect all Post-Construction Storm Water BMPs serving the Property at least once per year in accordance with Chapter 909 of the City of Tiffin Codified Ordinances. Annual Inspection Reports prepared by storm water certified person (e.g., P.E., CESSWI, CPESC), as approved by the City Engineer, are due to the City prior to March 1st of each calendar year, or within sixty (60) days from a written request of the City.
- 2. The Owner grants permission to the City to enter the Property and to inspect all aspects of the Post-Construction Storm Water BMPs and related drainage appurtenances whenever the City deems necessary. The City shall provide the Owner copies of the inspection findings and a directive to commence with the repairs if necessary.
- 3. The Owner shall make all emergency repairs within ten (10) days of their discovery through Owner inspections or through a request from the City. The Owner shall make all repairs deemed

non-emergency by the City within thirty (30) days of their discovery through Owner inspections or through a request from the City. If repairs will not occur within this applicable time period, the Owner must receive written approval from the Tiffin City Engineer for an alternate repair schedule.

4. In the event of the following:

- i. Any default or failure by the Owner in the performance of any of the covenants and warranties pertaining to the maintenance of the Post-Construction Storm Water BMPs
- ii. Owner failure to maintain the Post-Construction Storm Water BMPs in accordance with the approved design standards and Maintenance Plan
- iii. An emergency as determined by the City

The City shall provide reasonable notice to the Owner, and may enter the property and take whatever steps necessary to correct deficiencies and to charge the cost of such repairs to the Owner. The Owner shall reimburse the City upon demand, within thirty (30) days of receipt thereof for all actual cost incurred by the City. All costs expended by the City in performing such necessary maintenance or repairs shall constitute a lien against the properties of the Owner. Nothing herein shall obligate the City to maintain the Post-Construction Storm Water BMPs.

D. FUNDING

The Owner agrees to secure and maintain funding for the perpetual inspection, operation, and maintenance of the Post-Construction Storm Water BMPs listed in this Inspection and Maintenance Agreement.

E. INDEMNIFICATION

1. The Owner hereby agrees that it shall save, hold harmless, and indemnify the City and its employees and officials from and against all liability, losses, claims, demands, costs and expenses arising from, or out of, default or failure by the Owner to maintain the Post-Construction Storm Water BMPs, in accordance with the terms and conditions set forth herein, or from acts of the Owner arising from, or out of, the construction, operation, repair or maintenance of the Post-Construction Storm Water BMPs.
2. The parties hereto expressly do not intend by execution of this Inspection and Maintenance Agreement to create in the public, or any member thereof, any rights as a third party beneficiary or to authorize anyone not a party hereof to maintain a suit for any damages pursuant to the terms of this Inspection and Maintenance Agreement.
3. This Inspection and Maintenance Agreement shall be a covenant that runs with the land and shall inure to the benefit of and shall be binding upon the parties hereto, their respective successors and assigns, and all subsequent owners of the property.

4. The current Owner shall promptly notify the City when the Owner legally transfers any of the Owner's responsibilities for the Post-Construction Storm Water BMPs. The Owner shall supply the City with a copy of any document of transfer, executed by both parties.
5. Upon execution of this Inspection and Maintenance Agreement, it shall be filed in the Tiffin City Engineer's office and recorded in the Seneca County Recorder's office. The Owner shall also provide for the City a copy of the property deed for their records.

IN WITNESS WHERE OF, the Owner has caused this Inspection and Maintenance Agreement to be signed in its names by a duly authorized person.

OWNER

Executed By: _____
Company Name _____ Date _____
Name & Position of Authorized Person Signing _____

Signatory Address: _____

Site Address: _____

Site Contact Person Information: _____

CITY OF TIFFIN

Accepted By: _____
Tiffin City Engineer _____ Date _____

The foregoing instrument was acknowledged before me this _____ day of _____, 2020, by _____, by _____, its _____, and that the same was his free and voluntary act and deed individually and as said officer.

_____X

Notary

The foregoing instrument was acknowledged before me this ____ day of _____, 2020, by the CITY OF TIFFIN, by _____, its City Engineer, and that the same was his free and voluntary act and deed individually and as said officer.

Notary

6

MCM #4 – CONSTRUCTION SITE RUNOFF CONTROL

Section 9 – Notice of Violation (NOV) Letter



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CITY OF TIFFIN, OHIO
CONSTRUCTION SITE RUNOFF CONTROL
NOTICE OF VIOLATION

NOTICE OF VIOLATION

DATE: _____

DATE OF INSPECTION: _____

NAME OF FACILITY: _____

TYPE OF FACILITY: _____

LOCATION: _____

You are hereby notified that during the inspection of the storm water facility above, the facility was found to be in violation of the Inspection and Maintenance (I&M) Agreement on record with the City of Tiffin and in accordance with Chapter 909. The following violations were noted by the City of Tiffin:

Therefore, you are hereby notified that the site is in violation of City of Tiffin Chapter 909.

Attached is the completed City of Tiffin Storm Water Site Inspection Checklist that indicates the violations observed during the inspection on the date listed above. Remedial actions to correct these violations must be initiated immediately.

Within seven (7) calendar days of receipt of the Notice of Violation, please respond in writing to the Tiffin City Engineer at the above address with the corrective measures you have initiated to attain compliance and/or a schedule indicating the actions you will take to attain compliance to correct each of the violations noted on the attached checklist.

Should you fail to remediate or restore within the established deadline, legal action for enforcement may be initiated by the City of Tiffin in accordance with Chapter 909. A follow-up inspection will take place within thirty (30) days from the prior inspection.

According to Part III.G.2 of the Ohio EPA NPDES construction General Permit (CGP) #OHC000005, site inspections are required by the permittee once every seven (7) calendar days and within twenty-four (24) hours after any storm event greater than one-half inch of rain within a twenty-four (24) hour period. Inspection reports must be available on site for review by the City and/or Ohio EPA. Proper maintenance should be performed on all SWPPP controls and BMPs. Any amendments to the SWPPP must be performed in accordance with Part III.D. of the CGP.

The issuance of this document serves as notice to you that the City of Tiffin has determined that a violation has occurred and does not preclude the State of Ohio or any of its agencies from initiation of further administrative or judicial enforcement action, or from assessing penalties, either in respect to this or other violations.

If you have any questions, please contact me at 419-448-5425.

Sincerely,

Matt Watson, P.E.
City Engineer

MCM #4 – CONSTRUCTION SITE RUNOFF CONTROL

Section 10 – Stop Work Order (SWO) Form



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Pursuant to Chapter 909 of the City of Tiffin
Codified Ordinances

CITY OF TIFFIN, OHIO CONSTRUCTION SITE RUNOFF CONTROL STOP WORK ORDER

PERMIT NUMBER: _____

PROJECT NAME: _____

PROJECT LOCATION: _____

Stop Work Order Issued to:

Stop Work Order Issued by:

Construction Site Runoff Control Permit Applicant

Matt Watson, P.E.
Tiffin City Engineer

Date

ALL WORK (AS NOTED BELOW) WILL CEASE IMMEDIATELY.

Any person who continues to work at this site after having been served this Stop Work Order, shall be subject to penalties prescribed by law, unless that person is directed to remove a violation or unsafe condition.

Contact City of Tiffin City Engineer at (419) 448-5425 with any questions.

Description of Affected Work: _____

MCM#5 – Post-Construction Storm Water Management



CITY OF TIFFIN
STORM WATER MANAGEMENT PROGRAM
MCM#5 – POST-CONSTRUCTION STORM WATER MANAGEMENT
TABLE OF CONTENTS

- 5-1. Introduction
- 5-2. Post-Construction Storm Water Management Standard Operating Procedures (SOPs)
- 5-3. Post-Construction Storm Water BMPs Inventory
- 5-4. Notice of Violation (NOV) Form
- 5-5. Post-Construction Storm Water BMPs Annual Facility Inspection Report Form
- 5-6. Inspection Checklists for Long-term Maintenance of Post-Construction Storm Water BMPs

MCM #5 – POST-CONSTRUCTION STORM WATER MANAGEMENT

Section 1 – Introduction



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MCM#5 – POST-CONSTRUCTION STORM WATER MANAGEMENT INTRODUCTION

This Post-Construction Storm Water Management Program was developed to ensure that post-construction storm water best management practices (BMPs) are functioning as designed and permitted. To address this minimum control measure (MCM), the City of Tiffin requires that all owners of post-construction BMPs submit a certified Storm Water BMP As-Built along with an Inspection and Maintenance (I&M) Agreement to the City Engineer.

In addition, the Post-Construction Storm Water Management Program also includes standard operating procedures (SOPs) for long-term inspection and maintenance of permanent storm water facilities. This program includes SOPs and associated documents used to establish and enforce inspection & maintenance standards for post-construction storm water BMPs. The Post-Construction Storm Water Management SOPs include detailed procedures for inspection & maintenance agreements, annual reporting, and enforcement action and escalation. The City is authorized to request and collect facility inspection reports of post-construction storm water BMPs for inclusion into MS4 Annual Reports. In instances where BMPs are not in compliance, the City Engineer is authorized to conduct inspections and require corrective action through issuance of Notice of Violations (NOVs). The Post-Construction Storm Water Facilities Inventory is used to maintain documentation for post-construction storm water BMPs.

MCM #5 – POST-CONSTRUCTION STORM WATER MANAGEMENT

Section 2 – Standard Operating Procedure



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CITY OF TIFFIN, OHIO POST-CONSTRUCTION STORM WATER MANAGEMENT STANDARD OPERATING PROCEDURE

A. Purpose

Chapter 909 of the City of Tiffin Codified Ordinances requires that long-term inspection & maintenance (I&M) agreements be developed for post-construction best management practices (BMPs). Post-Construction Inspection & Maintenance Agreements and certified storm water BMP As-Built are to be submitted with the Construction Site Runoff Control Permit Notice of Termination as described in the Tiffin SWMP MCM#4. Post-construction inspection and maintenance must be completed in accordance with the approved post-construction Inspection & Maintenance Agreement (I&M Agreement) for Storm Water BMPs. The responsible party identified in the I&M Agreement must prepare and submit annual Facility Inspection Reports to the City of Tiffin.

I&M Agreements for Permanent Storm Water Facilities shall be developed in accordance with the latest edition of the Ohio Department of Natural Resources (ODNR) Division of Soil and Water Conservation "Rainwater and Land Development Manual" or the US EPA's Natural Menu of BMPs. Legally binding I&M Agreements for Permanent Storm Water Facilities must reflect:

- Specific post-construction storm water BMPs approved for the property,
- BMP-specific inspection and maintenance requirements, and
- Appropriate schedules for each facility (minimum of annual inspections).

B. Permittee Document Preparation

- 1) Review Chapter 909 of City of Tiffin Codified Ordinances.
- 2) Gather any pertinent information to the post-construction storm water BMPs including approved SWPPP, finalized development plans, or facility inspection reports furnished to the City.
- 3) Per I&M Agreement requirements, prepare and submit annual Facility Inspection Report to Tiffin City Engineer prior to March 1st of each calendar year. Complete and authorize Post-Construction Storm Water BMPs Annual Facility Inspection Report form and attach completed Inspection Checklist for Long-term Maintenance of Post-Construction Storm Water BMPs.

C. City Post-Construction Procedure

- 1) City Engineer to manage and authorize Post Construction I&M Agreements for Storm Water BMPs.
- 2) Once per year, the City shall request and collect facility inspection reports from designated Owners of I&M Agreements for post-construction stormwater BMPs for inclusion into MS4 Annual Reports.
- 3) If permittee/owner of post-construction BMPs do not return facility inspection reports to the City, the City Engineer is authorized to perform inspections of post-construction storm water

BMPs to determine if the system(s) are functioning as designed and permitted.

Use Inspection Checklists for Long-term Maintenance of Post-Construction Storm Water BMPs (adapted from Center for Watershed Protection) for guidance in determining compliance with local, state and federal regulations.

- 4) If the inspection of the post-construction storm water BMP results in identification of any deficiencies, the City Engineer shall issue Notice of Violation (NOV).
- 5) Notify all facility owners with deficiencies and require corrective action within four (4) months of issuance of NOV.
- 6) If owners of post-construction storm water BMPs do not implement required corrective action within four (4) months of NOV issuance, the City may complete the repairs and bill the property owner for such repairs per the I&M Agreement.

D. City Records

- 1) City Engineer shall keep logs of all I&M Agreements that are submitted to the City.
- 2) Annually update the GIS database to include all post-construction storm water BMPs installed within City limits.
- 3) Keep copies of returned Annual Facility Inspection Reports on file for at least three (3) years, should the City be required to perform maintenance for non-compliance.

MCM #5 – POST-CONSTRUCTION STORM WATER MANAGEMENT

Section 3 – Storm Water Facilities Inventory



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**City of Tiffin, Ohio SWMP
Post-Construction Stormwater BMPs Inventory**

(Revised October 2019)

ID	Facility Name	Location	Facility Type	City GIS Map Location	Total Area (acres)	Maint.	Ownership	I&M Agreement?	Date of Last Inspection	# Inspections Completed During Reporting Year
1	Eagle Rock Detention Basin 1	1441 N County Rd 11	Det Basin - Dry	Sec 4	8.55	Public	Public			
2	Eagle Rock Detention Basin 2	Shawhan Ave & Tyber Rd	Det Basin - Dry	Sec 4	11.62	Public	Public			
3	Hedgegate Condos Detention Basin 1	Coe St & Hedgegate N	Det Basin - Dry	Sec 10	0.01	Private	Private	Pending		
4	Hedgegate Condos Detention Basin 2	E County Road 36 & Hedgegate N	Det Basin - Dry	Sec 10	0.02	Private	Private	Pending		
5	Hedgegate Condos Detention Basin 3	Hedgegate N	Det Basin - Wet	Sec 10	0.07	Private	Private	Pending		
6	Heidelberg Univ Bioretention Basin 1	132 Rebecca St	Bioretention-Wet	Sec 9	0.68	Private	Private	Pending		
7	Heidelberg Univ Bioretention Basin 2	Rebecca St & Circular St	Bioretention- Dry	Sec 9	0.13	Private	Private	Pending		
8	Hospital Detention Basin	45 St Lawrence Dr	Det Basin - Wet	Sec 1	0.45	Private	Private	Pending		
9	Kennat Blvd Detention Basin	Kennat Blvd	Det Basin - Dry	Sec 9	0.15	Private	Private	Pending		
10	Lowe's Detention Basin	1025 W Market St	Det Basin - Dry	Sec 1	0.61	Private	Private	Pending		
11	N Cedar Court Detention Basin	N Cedar Court	Det Basin - Dry	Sec 5	0.19	Private	Private	Pending		
12	Oakley Meadow Detention Basin	Oakley Meadow Ln	Det Basin - Dry	Sec 10	0.28	Private	Private	Pending		
13	Rural King Detention Basin	2310 W Market St	Det Basin - Dry	Sec 1	0.24	Private	Private	Pending		
14	SPEC Building Detention Basin	East of 957 N County Rd 11	Det Basin - Dry	Sec 4	1.79	Public	Public			
15	Walmart Detention Basin	SR 18 & US 224	Det Basin - Dry	Sec 1	0.90	Private	Private	Pending		
16	Tiffin Pointe Detention Basin 1	639 W Market St	Det Basin - Dry	Sec 3	0.13	Private	Private	Pending		
17	Tiffin Pointe Detention Basin 2	639 W Market St	Det Basin - Wet	Sec 3	0.12	Private	Private	Pending		
18	Tiffin University Bioretention Basin 1 (Gilmore Center-5 Basins)	Miami St & Gilmore St	Bioretention	Sec 2	0.45	Private	Private	Pending		
19	Tiffin University Bioretention Basin 2 (Wrestling Bldg)	Gilmore St	Bioretention	Sec 2	0.09	Private	Private	Pending		
20	Tiffin University Bioretention Basin 3 (E-Sports Bldg)	Miami St	Bioretention	Sec 2	0.12	Private	Private	Pending		
21	Tiffin University Bioretention Basin 4 (Living Learning Comm Dorms)	Miami St	Bioretention	Sec 2	0.17	Private	Private	Pending		
22	West End Development Retention Basin #1	West End Development - Progress Pkwy	Retention Basin	Sec 1	0.06	Public	Public			
23	West End Development Retention Basin #2	West End Development - Fair Ln & Progress Pkwy	Retention Basin	Sec 1	0.20	Public	Public			
24	West End Development Retention Basin #3	West End Development - Fair Ln	Retention Basin	Sec 1	0.34	Public	Public			
25	West End Development Retention Basin #4	West End Development - Fair Ln	Detention Basin	Sec 1	0.41	Public	Public	Pending		
26	Dallas Street Detention Basin	Dallas St & Augusta Ln	Det Basin - Dry	Sec 8	0.75	Private	Private	Pending		
27	Rita Lane Detention Basin	N Sandusky St & Rita Ln	Det Basin - Dry	Sec 8	0.10	Private	Private	Pending		
28	Westgate Area Detention Basin 1	Miami St	Det Basin - Dry	Sec 1	3.41	Public	Public			
29	Westgate Area Detention Basin 2	Cottonwood Dr	Det Basin - Dry	Sec 1	1.18	Private	Private	Pending		
30	Westgate Area Detention Basin 3	672 Miami St	Det Basin - Dry	Sec 2	3.84	Public	Public			

MCM #5 – POST-CONSTRUCTION STORM WATER MANAGEMENT

Section 4 – Notice of Violation (NOV) Form



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POST-CONSTRUCTION STORM WATER MANAGEMENT NOTICE OF VIOLATION

NOTICE OF VIOLATION

DATE: _____

DATE OF INSPECTION: _____

NAME OF FACILITY: _____

TYPE OF FACILITY: _____

LOCATION: _____

You are hereby notified that during the inspection of the stormwater facility above, the facility was found to be in violation of the Inspection and Maintenance (I&M) Agreement on record with the City of Tiffin and in accordance with Chapter 909. The following violations were noted by the City of Tiffin:

Remedial action to correct these violations must be initiated immediately. The following remediation and/or restoration actions must be completed by the date indicated:

ACTION

DEADLINE

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

For questions, or to report completion of the above action items, contact the City of Tiffin Engineer's Office at (419) 448-5425 or tiffinengineers@tiffinohio.gov.

INSPECTOR NAME: _____

INSPECTOR TITLE: _____

SIGNATURE: _____

MCM #5 – POST-CONSTRUCTION STORM WATER MANAGEMENT

Section 5 – Post-Construction Storm Water BMPs Annual Facility
Inspection Report Form



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POST-CONSTRUCTION STORM WATER BMPs ANNUAL FACILITY INSPECTION REPORT

City of Tiffin Engineer's Office
51 E Market St., Tiffin, OH 44883
(419) 448-5425 * tiffinengineers@tiffinohio.gov

This form may be completed, signed and submitted to the Tiffin City Engineer prior to March 1st of each Calendar Year at the address above. Owner shall attach completed Inspection Checklist(s) for Long Term Maintenance of Post-Construction BMPs. Blank Checklists are available through the City Engineer's Office or online (<http://www.tiffinohio.gov>) in the City's Storm Water Management Program documents.

(1) PERMITTEE INFORMATION

Facility Name:

Location:

Owner:

Person Responsible for Maintenance:

Contact Person:
(Person responsible for Annual Report)

Phone No.:

Email Address:

(2) GENERAL INFORMATION

Report Period: From _____ To _____

Type(s) of Storm Water BMP(s):

- ☐ Detention Pond/ Wetland ☐ Bioretention Basin
☐ Vegetated Swale/ Channel ☐ Open Channel
☐ Other: _____

(3) CERTIFICATION AND ACKNOWLEDGEMENT

***Must be of a certified storm water professional (P.E., CESSWI, CPESC)**

I certify under penalty of law that this document and all attachments were prepared under my discretion or supervision and are to the best of my knowledge and belief, true, accurate, and complete:

Signed By: _____ Title: _____ Date: _____

Printed Name: _____ Certification: _____

EMAIL COMPLETED FORM AND ATTACHMENTS TO: tiffinengineers@tiffinohio.gov

OR MAIL TO: City of Tiffin Engineer's Office
51 E Market St.
Tiffin, OH 44883

MCM #5 – POST-CONSTRUCTION STORM WATER MANAGEMENT

Section 6 – Inspection Checklists for Long-term Maintenance of Post-Construction Storm Water BMPs



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Vegetated Swale/Grass Channel
Inspection and Maintenance Checklist
for Long Term Maintenance of Post-Construction BMPs

Facility Name: _____

Location: _____

Inspector(s): _____

Date and Time of Inspection: _____

Party Responsible for Maintenance:

Contact:

Phone Number:

E-mail:

0 = Good condition. Well maintained, no action required.
 1 = Moderate condition. Adequately maintained, routine maintenance needed.
 2 = Degraded condition. Poorly maintained, routine maintenance and repair needed.
 3 = Serious condition. Immediate need for repair or replacement.

A. Contributing Drainage Area

<input type="checkbox"/>	Inspected						
<input type="checkbox"/>	Not Inspected						
Item		Comments					
1.	Excessive trash/debris	0	1	2	3	N/A	
2.	Bare/exposed soil	0	1	2	3	N/A	
3.	Evidence of erosion	0	1	2	3	N/A	
4.	Excessive landscape waste/yard clippings	0	1	2	3	N/A	
5.	Impervious area added	0	1	2	3	N/A	

C. Inflow Points

	Inspected						
	Not Inspected						
Item							Comments
1.	Inflow points (e.g. downspouts, curb cuts, edge of pavement) provide stable conveyance into the channel	0	1	2	3	N/A	
2.	Excessive trash/debris/sediment accumulation at inflow points	0	1	2	3	N/A	
3.	Evidence of erosion at/around inflow points	0	1	2	3	N/A	

D. Facility (Grass Channel)

<input type="checkbox"/>	Inspected						
<input type="checkbox"/>	Not Inspected						
Item		Comments					
1.	Channel remains vegetated; no concrete, rip-rap, or other lining has been added	0	1	2	3	N/A	
2.	Grade ensures positive flow	0	1	2	3	N/A	
3.	Evidence of erosion	0	1	2	3	N/A	
4.	Sediment accumulation	0	1	2	3	N/A	
5.	Excessive trash/debris accumulation	0	1	2	3	N/A	

Vegetated Swale/Grass Channel
Inspection and Maintenance Checklist
for Long Term Maintenance of Post-Construction BMPs

6.	Evidence of oil/chemical accumulation	0	1	2	3	N/A
7.	Vegetation condition	0	1	2	3	N/A

F. Miscellaneous						
		Inspected				
		Not Inspected				
Item		Comments				
1.	Complaints from local residents	0	1	2	3	N/A
2.	Mosquito breeding	0	1	2	3	N/A
3.	Encroachments (e.g. filling, fences, obstructions, etc.)	0	1	2	3	N/A

Inspector's Summary:

Sketch of Facility (note problem areas)

Detention Pond/Wetland
Inspection and Maintenance Checklist
for Long Term Maintenance of Post-Construction BMPs

Facility Name: _____

Location: _____

Inspector(s): _____

Date and Time of Inspection: _____

Party Responsible for Maintenance:

Contact:

Phone Number:

E-mail:

0 = Good condition. Well maintained, no action required.
 1 = Moderate condition. Adequately maintained, routine maintenance needed.
 2 = Degraded condition. Poorly maintained, routine maintenance and repair needed.
 3 = Serious condition. Immediate need for repair or replacement.

Key Questions

	Item	X	Comments
1.	Type of stormwater pond or wetland (check all that apply)		
a.	Permanent pool sized for full WQv	<input type="checkbox"/>	
	OR		
	Shallow wetland sized for full WQv	<input type="checkbox"/>	
	OR		
	Micropool	<input type="checkbox"/>	
b.	Extended detention	<input type="checkbox"/>	
c.	Ties into groundwater	<input type="checkbox"/>	
d.	Pond with some wetland plantings	<input type="checkbox"/>	
e.	Multiple pond system	<input type="checkbox"/>	
2.	Type of wetland		
a.	Emergent	<input type="checkbox"/>	
b.	Forested	<input type="checkbox"/>	
3.	Type of pretreatment facility		
a.	Sediment forebay	<input type="checkbox"/>	
b.	Grass filter strip	<input type="checkbox"/>	
c.	Other	<input type="checkbox"/>	Type of pretreatment facility:

A. Contributing Drainage Area

	Inspected						
	Not Inspected						
	Item						Comments
1.	Excessive trash/debris	0	1	2	3	N/A	
2.	Bare/exposed soil	0	1	2	3	N/A	
3.	Evidence of erosion	0	1	2	3	N/A	
4.	Excessive landscape waste/yard clippings	0	1	2	3	N/A	

Detention Pond/Wetland
Inspection and Maintenance Checklist
for Long Term Maintenance of Post-Construction BMPs

B. Pretreatment						
<input type="checkbox"/>	Inspected					
<input type="checkbox"/>	Not Inspected					
	Item					Comments
1.	Maintenance access to pretreatment facility	0	1	2	3	N/A
2.	Excessive trash/debris accumulation	0	1	2	3	N/A
3.	Excessive sediment accumulation	0	1	2	3	N/A Sediment marker reading:
4.	Evidence of clogging	0	1	2	3	N/A
5.	Dead vegetation/exposed soil	0	1	2	3	N/A
6.	Evidence of erosion	0	1	2	3	N/A

C. Inlets						
<input type="checkbox"/>	Inspected					
<input type="checkbox"/>	Not Inspected					
	Item					Comments
1.	Inlets provide stable conveyance into facility	0	1	2	3	N/A
2.	Excessive trash/debris/sediment accumulation at inlet	0	1	2	3	N/A
3.	Evidence of erosion at/around inlet	0	1	2	3	N/A

D. Facility						
<input type="checkbox"/>	Inspected					
<input type="checkbox"/>	Not Inspected					
	Item					Comments
1.	Maintenance access to facility	0	1	2	3	N/A
2.	Sediment accumulation	0	1	2	3	N/A
	a. Bathymetric study recommended	<input type="checkbox"/>				
3.	Abnormally high or low water levels	0	1	2	3	N/A Cause:
4.	Evidence of pollution/hotspot runoff	0	1	2	3	N/A Cause:
5.	Berm(s)/embankment(s)	0	1	2	3	N/A
	a. Cracking, bulging or sloughing	0	1	2	3	N/A
	b. Soft spots or sinkholes	0	1	2	3	N/A
	c. Evidence of erosion	0	1	2	3	N/A
	d. Evidence of animal burrows	0	1	2	3	N/A
	e. Presence of woody vegetation	0	1	2	3	N/A
6.	Riser/outlet	0	1	2	3	N/A Type of riser:
	a. Maintenance access to riser	0	1	2	3	N/A
	b. Structural condition of riser	0	1	2	3	N/A
	c. Condition of joints	0	1	2	3	N/A
	d. Trash/debris accumulation	0	1	2	3	N/A

Detention Pond/Wetland
Inspection and Maintenance Checklist
for Long Term Maintenance of Post-Construction BMPs

7.	Low flow orifice	0	1	2	3	N/A
a.	Trash/debris accumulation	0	1	2	3	N/A
b.	Adjustable control valve accessible and operational	0	1	2	3	N/A
8.	Pond drain (underdrain) system	0	1	2	3	N/A
a.	Broken	<input type="checkbox"/>				
b.	Clogged	<input type="checkbox"/>				
c.	Adjustable control valve accessible and operational	0	1	2	3	N/A
9.	Vegetation	0	1	2	3	N/A
a.	Plant composition consistent with approved plans	0	1	2	3	N/A
b.	Presence of invasive species/weeds	0	1	2	3	N/A
c.	Dead vegetation/exposed soil	0	1	2	3	N/A
d.	Reinforcement planting recommended	<input type="checkbox"/>				

E. Outlets						
<input type="checkbox"/>	Inspected					
<input type="checkbox"/>	Not Inspected					
Item		Comments				
1.	Outlets provide stable conveyance out of facility	0	1	2	3	N/A
2.	Excessive trash/debris/sediment accumulation at outlet	0	1	2	3	N/A
3.	Evidence of erosion at/around outlet	0	1	2	3	N/A

F. Miscellaneous						
<input type="checkbox"/>	Inspected					
<input type="checkbox"/>	Not Inspected					
Item		Comments				
1.	Complaints from local residents	0	1	2	3	N/A
2.	Mosquito proliferation	0	1	2	3	N/A
3.	Encroachment on facility or easement by buildings or other structures	0	1	2	3	N/A
4.	Adequate safety signage	0	1	2	3	N/A

Inspector's Summary:

Detention Pond/Wetland
Inspection and Maintenance Checklist
for Long Term Maintenance of Post-Construction BMPs

Inspector's Summary (Continued):

Sketch of Facility

(note problem areas)

Infiltration/Filtration/Bioretention Practice
Inspection and Maintenance Checklist
for Long Term Maintenance of Post-Construction BMPs

Facility Name: _____

Location: _____

Inspector(s): _____

Date and Time of Inspection: _____

Party Responsible for Maintenance:

Contact:

Phone Number:

E-mail:

0 = Good condition. Well maintained, no action required.

1 = Moderate condition. Adequately maintained, routine maintenance needed.

2 = Degraded condition. Poorly maintained, routine maintenance and repair needed.

3 = Serious condition. Immediate need for repair or replacement.

Key Questions

	Item	X	Comments
1.	Type of facility (check all that apply)		
a.	Infiltration	<input type="checkbox"/>	
b.	Filtration	<input type="checkbox"/>	
c.	Bioretention	<input type="checkbox"/>	
d.	Extended detention (storage for Cp, Qp, Qf)	<input type="checkbox"/>	
2.	Facility location		
a.	Surface	<input type="checkbox"/>	
b.	Underground	<input type="checkbox"/>	
3.	Filtration Media		
a.	No filtration media (e.g. dry well)	<input type="checkbox"/>	
b.	Sand	<input type="checkbox"/>	
c.	Bioretention soil	<input type="checkbox"/>	
d.	Peat	<input type="checkbox"/>	
e.	Other	<input type="checkbox"/>	
4.	Hydraulic configuration		
a.	On-line facility	<input type="checkbox"/>	
b.	Off-line facility	<input type="checkbox"/>	
5.	Type of pretreatment facility		
a.	Sediment forebay (above ground)	<input type="checkbox"/>	
b.	Sedimentation chamber	<input type="checkbox"/>	
c.	Grass channel	<input type="checkbox"/>	
d.	Grass filter strip	<input type="checkbox"/>	
e.	Plunge pool	<input type="checkbox"/>	
f.	Stone diaphragm	<input type="checkbox"/>	
g.	Other	<input type="checkbox"/>	Type of pretreatment facility:

A. Contributing Drainage Area

<input type="checkbox"/>	Inspected						
<input type="checkbox"/>	Not Inspected						
	Item						Comments
1.	Excessive trash/debris	0	1	2	3	N/A	
2.	Bare/exposed soil	0	1	2	3	N/A	

Infiltration/Filtration/Bioretention Practice
Inspection and Maintenance Checklist
for Long Term Maintenance of Post-Construction BMPs

3.	Evidence of erosion	0	1	2	3	N/A
4.	Excessive landscape waste/yard clippings	0	1	2	3	N/A

B. Pretreatment						
		Inspected				
		Not Inspected				
Item		Comments				
1.	Maintenance access to pretreatment facility	0	1	2	3	N/A
2.	Excessive trash/debris/sediment	0	1	2	3	N/A
3.	Evidence of standing water					
a.	Ponding					
b.	Noticeable odors					
c.	Water stains					
d.	Presence of algae or floating aquatic vegetation					
4.	Evidence of clogging	0	1	2	3	N/A
5.	Dead vegetation/exposed soil	0	1	2	3	N/A
6.	Evidence of erosion	0	1	2	3	N/A

C. Inlets						
		Inspected				
		Not Inspected				
Item		Comments				
1.	Inlets provide stable conveyance into facility	0	1	2	3	N/A
2.	Excessive trash/debris/sediment accumulation at inlet	0	1	2	3	N/A
3.	Evidence of erosion at/around inlet	0	1	2	3	N/A

D. Facility						
		Inspected				
		Not Inspected				
Item		Comments				
1.	Maintenance access to facility	0	1	2	3	N/A
2.	Condition of structural components	0	1	2	3	N/A
3.	Condition of hydraulic control components	0	1	2	3	N/A
4.	Excessive trash/debris/sediment	0	1	2	3	N/A
5.	Evidence of erosion	0	1	2	3	N/A
6.	Evidence of oil/chemical accumulation	0	1	2	3	N/A
7.	Evidence of standing water:					
a.	Ponding					
b.	Noticeable odors					
c.	Water stains					
d.	Presence of algae or floating aquatic vegetation					

Infiltration/Filtration/Bioretention Practice
Inspection and Maintenance Checklist
for Long Term Maintenance of Post-Construction BMPs

8.	Underdrain system (if equipped)	0	1	2	3	N/A
	a. Broken	<input type="checkbox"/>				
	b. Clogged	<input type="checkbox"/>				
9.	Vegetation	0	1	2	3	N/A
	a. Plant composition consistent with approved plans	0	1	2	3	N/A
	b. Presence of invasive species/weeds	0	1	2	3	N/A
	c. Dead vegetation/exposed soil	0	1	2	3	N/A

E. Outlets						
<input type="checkbox"/>	Inspected					
<input type="checkbox"/>	Not Inspected					
	Item					Comments
1.	Outlets provide stable conveyance out of facility	0	1	2	3	N/A
2.	Excessive trash/debris/sediment accumulation at inlet	0	1	2	3	N/A
3.	Evidence of erosion at/around inlet	0	1	2	3	N/A

F. Miscellaneous						
<input type="checkbox"/>	Inspected					
<input type="checkbox"/>	Not Inspected					
	Item					Comments
1.	Complaints from local residents	0	1	2	3	N/A
2.	Mosquito proliferation	0	1	2	3	N/A
3.	Encroachment on facility or easement by buildings or other structures	0	1	2	3	N/A

Inspector's Summary:

Infiltration/Filtration/Bioretention Practice
Inspection and Maintenance Checklist
for Long Term Maintenance of Post-Construction BMPs

Sketch of Facility

(note problem areas)

Open Channel
Inspection and Maintenance Checklist
for Long Term Maintenance of Post-Construction BMPs

Facility Name: _____

Location: _____

Inspector(s): _____

Date and Time of Inspection: _____

Party Responsible for Maintenance:

Contact:

Phone Number:

E-mail:

0 = Good condition. Well maintained, no action required.

1 = Moderate condition. Adequately maintained, routine maintenance needed.

2 = Degraded condition. Poorly maintained, routine maintenance and repair needed.

3 = Serious condition. Immediate need for repair or replacement.

Key Questions

	Item	X	Comments
1.	Type of open channel system		
a.	Dry swale	<input type="checkbox"/>	
b.	Wet swale	<input type="checkbox"/>	
c.	Other	<input type="checkbox"/>	Type of system:
2.	Type of pretreatment facility		
a.	Sediment forebay	<input type="checkbox"/>	
b.	Check dam	<input type="checkbox"/>	
c.	Grass filter strip	<input type="checkbox"/>	
d.	Stone diaphragm	<input type="checkbox"/>	
e.	Other	<input type="checkbox"/>	Type of pretreatment facility:
f.	None	<input type="checkbox"/>	

A. Contributing Drainage Area

	Inspected						
	Not Inspected						
	Item						Comments
1.	Excessive trash/debris	0	1	2	3	N/A	
2.	Bare/exposed soil	0	1	2	3	N/A	
3.	Evidence of erosion	0	1	2	3	N/A	
4.	Excessive landscape waste/yard clippings	0	1	2	3	N/A	

B. Pretreatment

	Inspected						
	Not Inspected						
	Item						Comments
1.	Maintenance access to pretreatment facility	0	1	2	3	N/A	
2.	Excessive trash/debris/sediment	0	1	2	3	N/A	
3.	Evidence of clogging	0	1	2	3	N/A	
4.	Dead vegetation/exposed soil	0	1	2	3	N/A	
5.	Evidence of erosion	0	1	2	3	N/A	

Open Channel
Inspection and Maintenance Checklist
for Long Term Maintenance of Post-Construction BMPs

C. Inlets						
<input type="checkbox"/> Inspected						
<input type="checkbox"/> Not Inspected						
	Item					Comments
1.	Inlets provide stable conveyance into system	0	1	2	3	N/A
2.	Excessive trash/debris/sediment accumulation at inlet	0	1	2	3	N/A
3.	Evidence of erosion at/around inlet	0	1	2	3	N/A

D. Facility						
<input type="checkbox"/> Inspected						
<input type="checkbox"/> Not Inspected						
	Item					Comments
1.	Maintenance access to facility	0	1	2	3	N/A
2.	Sediment accumulation	0	1	2	3	N/A
3.	Evidence of erosion	0	1	2	3	N/A
4.	Evidence of oil/chemical accumulation	0	1	2	3	N/A
5.	Evidence of standing water:	<input type="checkbox"/>				
	a. Ponding	<input type="checkbox"/>				
	b. Noticeable odors	<input type="checkbox"/>				
	c. Water stains	<input type="checkbox"/>				
	d. Presence of algae or floating aquatic vegetation	<input type="checkbox"/>				
6.	Underdrain system (if equipped)	0	1	2	3	N/A
	a. Broken	<input type="checkbox"/>				
	b. Clogged	<input type="checkbox"/>				
7.	Condition of check dams	0	1	2	3	N/A
8.	Vegetation	0	1	2	3	N/A
	a. Plant composition consistent with approved plans	0	1	2	3	N/A
	b. Presence of invasive species/weeds	0	1	2	3	N/A
	c. Dead vegetation/exposed soil	0	1	2	3	N/A

E. Outlets						
<input type="checkbox"/> Inspected						
<input type="checkbox"/> Not Inspected						
	Item					Comments
1.	Outlets provide stable conveyance out of facility	0	1	2	3	N/A
2.	Excessive trash/debris/sediment accumulation at inlet	0	1	2	3	N/A
3.	Evidence of erosion at/around inlet	0	1	2	3	N/A

Open Channel
 Inspection and Maintenance Checklist
 for Long Term Maintenance of Post-Construction BMPs

F. Miscellaneous									
	Inspected								
	Not Inspected								
	Item	0	1	2	3	N/A	Comments		
1.	Complaints from local residents	0	1	2	3	N/A			
2.	Mosquito proliferation	0	1	2	3	N/A			
3.	Encroachment on facility or easement by buildings or other structures	0	1	2	3	N/A			

Inspector's Summary:

Sketch of Facility
(note problem areas)

MCM#6 – Pollution Prevention and Good Housekeeping



CITY OF TIFFIN

STORM WATER MANAGEMENT PROGRAM

MCM#6 – POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

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MCM #6 – POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Section 1 – MCM #6 Introduction



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MCM#6 – POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS INTRODUCTION

The Pollution Prevention and Good Housekeeping program documents the operation and maintenance (O&M) measures used to prevent and reduce pollutant runoff from City operations. The MS4 O&M Manual (MCM 6 Section 2) defines the maintenance activities and schedules implemented by the City during municipal operations to satisfy this MCM. The Manual includes procedures for proper disposal of waste removed from the MS4, as well as flood management assessment.

This program also includes a SWPPP for each municipal facility that currently performs vehicle maintenance, material storage and handling, or any subsector classified in the Ohio EPA Industrial Stormwater General Permit. Each SWPPP includes a facility description and contact information, documents the controls used to prevent and reduce storm water pollution from the site, identifies potential pollutant sources, and establishes procedures for long-term inspection and monitoring. Employee training documentation is attached to each site specific SWPPP. The Public Works Maintenance Facility SWPPP and Tiffin Parks and Recreation Facility SWPPP are included as MCM 6 Section 3 and MCM 6 Section 4, respectively.

MCM #6 – POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Section 2 – MS4 Operation and Maintenance (O&M) Manual



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City of Tiffin, Ohio Municipal Separate Storm Sewer System Operation and Maintenance Manual

October 2018



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1.0 INTRODUCTION/ BACKGROUND

1.1 Introduction

The City of Tiffin's (City's) small municipal separate storm sewer system (MS4) includes all systems which collect and/or convey storm water, are operated by the City, and which are not a combined sewer or part of a publicly owned treatment works (POTW). Tiffin's MS4 includes roads with underground drainage systems, municipal streets, catch basins, curbs, gutters, roadside ditches, man-made channels, storm drains and storm sewers. MS4s also provide benefits to the hydrological function of an area including:

- Drainage of excess rain and ground water from paved streets, parking lots, sidewalks and roofs, and
- Minimization of flooding and standing water.

The City's MS4 represents a significant infrastructure investment. Proper operation and maintenance is required to ensure the MS4 is capable of fulfilling its required functions, to protect the City's investment, and to maximize its service life.

This MS4 Operation & Maintenance (O&M) Manual has been developed for use as the primary reference for the operation and maintenance of the City's MS4. This document includes standard procedures for MS4 maintenance and inspection activities, maintenance schedules, good housekeeping practices for municipal operations, waste disposal practices, recordkeeping protocol, personnel, and emergency operations. Where appropriate, the user is directed to secondary references for specific information. This document should be continually reviewed and updated to accurately document the City's existing operation and maintenance practices for municipal activities.

1.2 Permits and Ordinances

The City's MS4 is currently authorized under the Ohio Environmental Protection Agency (Ohio EPA) National Pollutant Discharge Elimination Program (NPDES) General Permit (Permit No. OHQ000003) to discharge storm water from its MS4 outfalls to the Sandusky River.

The City has established and adopted a number of ordinances that govern the use of the MS4. These ordinances can be found in Chapter 909 of the City of Tiffin Codified Ordinances.

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2.0 MS4 INSPECTION AND MAINTENANCE

The Public Works Department is responsible for inspection and maintenance of the City's MS4. Standard operating procedures (SOPs) were developed for the MS4 including inspection and both preventative and reactive maintenance measures. These procedures were developed by documenting the current techniques used by field crews in performing work. Preventative maintenance efforts identify and remedy conditions before they become problems and include catch basin cleaning and inspection. Reactive maintenance efforts largely address requests made by residents and utilize the same inspection and cleaning techniques used for preventative maintenance. Repair or replacement of MS4 components that require excavation are performed by outside contractors.

This Section includes a description of each maintenance activity, standard procedures, and maintenance schedules. Relevant maintenance equipment is also included, where applicable. Actual procedures may vary based on site conditions and other variables such as weather, traffic concentration, etc.

2.1 Catch Basin Inspection

The City currently manages catch basin inspections to evaluate and identify any potential blockage or damage within the MS4 which may lead to surface flooding. Inspections are performed in conjunction with combined sewer inspections and are generally scheduled following storm events. Inspections may also be initiated through resident work requests or flooding complaints, which are deemed high priority. Two percent of catch basins within the MS4 shall be inspected per year.

Inspections are conducted through visually, without entering confined spaces. The field staff consists of three crews and each is assigned a section of the City. During the inspection process, the crew ensures the catch basin's grates are cleaned off and inspects the sump at the bottom of the catch basin for potential blockage. The field crew also records relevant information including location, sewer size, and blockage type (See **Section 7.2** MS4 Inspection and Maintenance Recordkeeping). If a significant amount of grit accumulation or associated impacts downstream are observed, the crew calls it into the Public Works Superintendent. From there, a work order is created to perform cleaning (See **Section 2.2** for Catch Basin Cleaning procedures). The City's procedure for catch basin inspection is included in **Appendix A**.

2.2 Catch Basin / MS4 Cleaning

Catch basin cleaning is performed to maintain the MS4's ability to retain sediment and debris in the catch basins and to prevent flooding. This activity involves cleaning the adjacent piping between the catch basin and the mainline storm sewer. Catch basin cleaning results in reduced blockage from sediment, debris, and other material that collects in the sump below the adjacent pipe invert.

These cleaning efforts may be initiated through the results of catch basin inspections or work requests. Cleaning frequencies are dependent on the rate of grit accumulation and associated impacts. Catch basin / MS4 cleaning work is generally prioritized by level of surface flooding or other observed or reported issues in the MS4.

Jetting and vacuuming are both used by the City to perform catch basin cleaning. Jetting involves using a high-pressured stream of water to push debris downstream to a

manhole, where it is removed via vacuuming. Vacuuming is the use of a truck-mounted vacuum to lift debris out of a manhole or catch basin. The City owns, operates, and maintains a vacuum truck for debris removal and jetting operations. Truck usage varies at the discretion of the Public Works Superintendent as required by system needs, personnel, and vehicle availability. The City's procedures for catch basin cleaning via jetting and vacuuming are included in **Appendix B**.

2.3 Catch Basin Repair

Catch basin and manhole repairs are occasionally performed by the Public Works field staff and are typically identified for repair through catch basin/ MS4 inspections. General maintenance activities include, but are not limited to, repairs to the structure's grating, framework, covers, and hoods or traps. Repair work is performed on an as-needed basis and is considered necessary after all other non-intrusive alternatives are exhausted. Structures are prioritized based on severity of associated safety impact.

The City's procedure for catch basin repair or replacement is included in **Appendix C**. Please refer to the City's Long Term Control Plan Update for additional information concerning sewer separation projects.

2.4 Spoils Dewatering and Disposal

Proper spoils handling techniques are used to manage the waste removed and collected from the City's MS4. The City has developed procedures for spoils dewatering and generation of solid waste for disposal. These spoils are primarily collected and maintained by the Vactor truck during catch basin/ MS4 cleaning. Dredged spoils are also collected from stormwater structural controls.

Vactor truck spoils, dredged spoils, or other equivalent material is drained into the vactor pit at the Water Pollution Control Center (WPCC). The City's procedure for spoils dewatering and disposal are included in **Appendix D**.

2.5 Contract Maintenance

Contract maintenance is performed on the MS4 by contractors hired by the City of Tiffin. Contract maintenance is used for major MS4 installations or improvements. The City performs the maintenance tasks outlined in this Section in conjunction with other inspection or maintenance work. The contractor is managed through the City Engineer. Contact the City Engineer for more information.

3.0 GOOD HOUSEKEEPING

Good housekeeping is a practical, cost effective way to prevent and eliminate pollutant discharges to the City's MS4. It includes establishing protocols for municipal operations to reduce the possibility of mishandling materials, to implement water quality control measures, and to avoid the over-application of materials to public right-of-ways. This Section describes good housekeeping practices that the City currently incorporates into MS4 municipal operations. Material type and associated application rate are also included, where applicable.

3.1 Roadway/ Parking Lot Deicing

The City manages a roadway/ parking lot deicing program which includes snow plowing and application of deicing materials to ensure road safety. Deicing operations are implemented on a reactive basis. Critical areas are given highest priority and include main streets, main intersections, and areas near schools. When snowfall is not significant, deicing is performed for critical areas only. Salt application varies to reflect site-specific characteristics such as road width, road design, traffic concentration, and proximity to surface waters.

To minimize possible stormwater runoff issues and to reduce the amount of road salt required for effective deicing, the City uses a combination of road salt and alternative agents. A mixture of road salt and beet juice concentrate is applied during deicing operations. The sugar in the beet juice solution lowers the freezing point of ice. In combination with beet juice, road salt melts ice at lower temperatures. The consistency of beet juice also minimizes the tendency for road salt to run off into nearby streams. These preventative measures result in reduced application of road salt and minimized pollutant discharge to local waterways.

3.2 Street Sweeping

The City operates a street sweeping program to ensure the structural integrity of municipal roadways and to decrease the accumulation of pollutants sent to the MS4 through catch basins. Street sweeping runs are conducted for all curb lines throughout the City. Field staff performs street sweeping during the fall, spring, and summer to remove road salt, leaves, sediment and other pollutants collected in the storm sewer system. The City also performs street sweeping in downtown areas before major public events. The City's sweeping schedule may also be influenced by traffic volume, land use, sediment and trash accumulation, and resident work requests. The City owns, operates, and maintains one mechanical street sweeper for material removal.

During the street sweeping process, surface materials are collected by the street sweeper. This accumulated material typically includes sediment, debris, leaves, trash, grass clippings, oil & grease, or road salt. After the street sweeping run is completed, the collected material is dewatered at the Public Works Facility. Solid material is collected from this process and sent to the landfill. (Refer to **Section 5.0 Waste Disposal**).

3.3 Pesticide Application

The City manages occasional use of pesticides during routine municipal operations within the public right-of-way. Pesticide application is performed on an as-needed basis and may be considered necessary once all other non-chemical approaches have been exhausted. To avoid over-application, equipment must be calibrated before this activity.

Chemical products are not applied during the following conditions:

- Heavy Winds
- Wet weather is expected in less than 24 hours
- Near pavement, MS4 inlets, or water bodies

Care is also taken to avoid chemical spills during the mixing and loading of applications into equipment. Leftover material is resealed in the container and secondarily contained in a labeled cabinet located inside the maintenance garage. Wash water from application equipment is disposed of in a sanitary sewer (Refer to **Section 5.0 Waste Disposal**).

3.4 Vegetation/ Landscaping Management

The City manages vegetation and landscaping for public-right-of-ways and municipal facility grounds. Vegetation maintenance and landscaping activities may include but are not limited to mowing of roadside ditches and berms, cutting of excessive brush, vegetation removal, watering and other landscaping practices. Frequency of vegetation and landscaping activities varies depending on site conditions.

Pollution prevention practices are utilized during landscaping and vegetation management work. Any soil disturbance projects are performed during dry weather. Landscaping materials such as soil and mulch are kept away from MS4 inlets, drainage ditches and surface waters. Landscaping equipment including lawn mowers are not refueled or cleaned near MS4 inlets, drainage ditches or surface waters. Equipment is also routinely inspected for leaks and repaired as necessary. Vegetative debris, grass clippings and brush clippings are collected during maintenance activities and temporarily stored at the Public Works Maintenance Facility or disposed of at the landfill. (Refer to **Section 5.0 Waste Disposal**).

3.5 Leaf Pickup

Curbside leaf pickup services are offered for all City residents. Removal of leaves throughout the City reduces the amount of debris entering catch basins and subsequently reduces MS4 maintenance. Leaf pickups are performed once per week in the fall, Monday through Thursday by ward. Missed routes are covered on Fridays.

Tiffin residents can purchase leaf pickup bags at local businesses. These bags can either be left for curbside pickup or be taken to the Sewer Department. The collected leaves are sent to the landfill (Refer to **Section 5.0 Waste Disposal**).

3.6 Roadway Surface Repair

Field staff performs minor repairs to municipal streets, alleys and parking lots. This work includes filling of potholes and minor roadway repairs. Repairs are performed as necessary and are typically initiated through resident work requests. It is encouraged that resident work requests include relevant information such as pothole size, description of damage, and alley material. Repair work is prioritized by severity of damage and associated impact to roadway safety.

The City owns, maintains, and operates a Durapatcher machine for cost-effective pothole repair. The Durapatcher system operates by cleaning the pothole area, applying tack coat, spraying an emulsion/aggregate mix into the pothole with force, and applying

a dry aggregate to prevent lifting of material.

Pollution prevention practices are used during roadway surface repair work. Roadway surface repair jobs are performed during dry weather. Materials such as cold patch, asphalt materials, and concrete materials are kept away from storm sewer inlets. After repair work completion, excess materials are swept up and properly disposed of (Refer to **Section 5.0** Waste Disposal). Excess material is transferred to the Public Works Maintenance Facility where it is stored for future use. Appropriate inlet protection must be provided for surface repair work that is located near or has the potential to enter MS4 inlets, drainage ditches, or surface waters.

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4.0 WASTE DISPOSAL

The City uses proper disposal practices for waste removed from its MS4 during municipal operations. Waste disposal practices may vary depending on pollutant type or nature of operation. Common waste generation from municipal activities includes sediment, nutrients, debris, metals, bacteria, oil and grease and organic material. This Section documents the procedures implemented for both on-site and off-site municipal operations.

4.1 On-Site Municipal Operations

Waste disposal practices for municipal facilities are site-specific and are included in each facility's Stormwater Pollution Prevention Plan (SWPPP) where applicable. Please refer to the facility of interest's SWPPP for specific waste disposal information.

The following general waste disposal practices are performed for the City's municipal facilities:

- Shop trash is kept in a dumpster with the lid closed.
- Liquid wastes are kept out of the dumpster.
- Waste metal is collected for delivery to scrap metal dealer.
- Empty drums stored outdoors are sealed to be watertight.
- Waste oil, antifreeze, solvents, and other liquids from vehicle maintenance are recycled.
- Spent batteries are disposed of as hazardous waste or returned for reclamation and reuse.

4.2 Off-Site Municipal Operations

Waste generated from MS4 maintenance activities and good housekeeping operations is collected and sent to designated locations. The Public Works Department is generally responsible for managing waste disposal for MS4 activities. Appropriate waste disposal locations are dependent on waste type and may vary with differing site conditions. Waste types, associated municipal operation, and appropriate waste disposal locations were identified and summarized in **Table 2.1**.

Table 4-1. Waste Disposal for Off-Site Municipal Operations

Operation	Waste Type(s)	Waste Disposal Location
Street Sweepings	Sediment, debris	Landfill
Catch Basin/ MS4 Cleaning	Sediment, debris	Landfill
Spoils Dewatering and Disposal	Dewatering spoils	Tiffin WPCC
Vegetative Maintenance	Brush clippings, vegetation, roots	Landfill

Roadway Surface Repair	Cold patch, asphalt, concrete materials	Landfill
Pesticide Application	Leftover pesticide	Hazardous landfill
Leaf pickup	Leaves, sediment	Landfill

4.3 Hazardous Waste

Tiffin employees utilize proper disposal practices to prevent any toxic or hazardous materials from entering the MS4. On-site practices are site-specific and are identified in each facility's SWPPP where applicable. For off-site activities, hazardous waste practices are dependent on site conditions and/or municipal activity type. The City implements the following practices during municipal operations:

- Providing a separate appropriate container for the proper disposal of toxic and hazardous materials at construction sites;
- Avoiding the washing of concrete material into streets, catch basin inlet, or other public entity or watercourse;
- Ensuring that any toxic or hazardous material and contaminated soils are properly disposed of in accordance with applicable state and federal regulatory requirements.

Any such hazardous or toxic waste is disposed at a licensed landfill.

5.0 FLOOD MANAGEMENT

The Tiffin Engineering Department ensures new construction and reconstruction projects are assessed for flood management. Flood management covers maintenance and management of publicly owned and operated water quality structures and the requirements for project areas being assessed for flood management improvements.

The processes of plan reviews, permitting, zoning and engineering ensures proper land development and promotes high-quality design standards including flood management improvements and structural controls. Projects are also evaluated to determine feasibility of adding water quality structures to reduce pollutants. These water quality structures may include but are not limited to oil-absorbent materials, vegetated swales/channels, and catch basin filters.

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6.0 RECORDKEEPING

The Public Works Department is responsible for addressing and maintaining records of public work requests, MS4 operation and maintenance activities, and good housekeeping measures implemented by the City. These recordkeeping practices are fundamental for the completion of the Small MS4 Annual Report.

6.1 Work Requests

Work requests and resident complaints are received and addressed by the Public Works Department. Work requests and resident complaints may be sent to the (419) 448-5430 phone number or to the Public Works Department general email, publicworks@tiffinohio.gov. This Public Works Department contact information is provided on the City's Public Works webpage. The following relevant information is recorded for calls:

- Resident name
- Resident address
- Nature of work request
- Location of work request

Submission of additional work request information is also considered and varies by work request type. Types of common work requests that may impact the discharge of pollutants to the City's MS4 include:

- Pot hole/ Street Repair
- Alley Repair
- Sewer Issues
- Tree Issues
- High Grass Complaints
- Leaf Pickup

Work request prioritization is dependent on associated public health and safety impact and varies at the discretion of the Public Works Superintendent.

After receiving a work request, a crew is generally dispatched to investigate the issue. Crews are provided with location of the work request, the nature of the request, and the resident information. Crews may determine the cause of the issue and whether a remedy is the City's responsibility or the resident's responsibility. This information is relayed back to the Public Works Superintendent. Crews personally notify the resident of the result of the investigation. If the problem is the responsibility of the City, the crews coordinate with the Superintendent to perform the work necessary to remedy the situation.

The Public Works Department maintains a record of work requests, resident complaints and associated results. This information is forwarded to the WPCC on a monthly basis, and is documented and submitted to Ohio EPA in the City's Small MS4 Annual Report.

6.2 MS4 Inspection and Maintenance Recordkeeping

MS4 maintenance efforts are recorded and maintained by the Public Works Department. This includes documentation of appropriate components from

preventative maintenance inspections, catch basin/ MS4 cleaning, and waste disposal activities.

The City's Public Works Department currently implements the following recordkeeping measures for MS4 inspection and maintenance efforts:

- **Catch Basin/ MS4 Cleaning:** A spreadsheet is filled in during catch basin/ MS4 cleaning. This spreadsheet requires documentation of sewer size, factor used, type of blockage, and location of blockage. Work orders for catch basin cleaning are also filed for reference. The number of hours attributed to catch basin cleaning and number of hours attributed to sewer line cleaning is maintained and documented in the Small MS4 Annual Reports.
- **Catch Basin Repair/Replacement:** The City keeps a record of the number of labor hours in which field staff spent repairing or replacing catch basins. This quantity is documented in the Small MS4 Annual Report.

6.3 Good Housekeeping Recordkeeping

Good housekeeping measures are also tracked through the Public Works Department. This includes documentation of materials usage from deicing and waste disposal from street sweeping. These data are included in the Annual Small MS4 Report.

The City currently keeps a record of the following good housekeeping components:

- **Roadway/ Parking Lot Deicing:** The weight of salt used by field staff during deicing efforts is tracked and recorded in the Small MS4 Annual Report.
- **Street Sweeping:** The City maintains a log of the number of hours in which field staff devoted to street sweeper runs, as well as the weight of debris sent to the landfill from street sweeping activities. These quantities are documented in the Small MS4 Annual Report.
- **Pesticide/Herbicide Application:** The volume of herbicide product used on City-owned property is tracked and documented in the Small MS4 Annual Report.

6.4 Mapping and Record Drawings

Record drawings for the MS4 are maintained by the City Engineer. These drawings are organized in flat files by location and scanned into digital format. The City's geographical information system (GIS) database includes mapping of the MS4 and is an ongoing effort. Other information regarding the Water Pollution Control Center is also available upon request.

7.0 PERSONNEL

The City Public Works Department performs MS4 inspection and maintenance and some minor MS4 repair work. Repair and replacement of MS4 components that require major excavation are performed by outside contractors through the City Engineer. The Public Works Department's staff consists of a Superintendent and an Assistant Superintendent who oversee a Street Division and a Sewer Division. The City's equipment list includes vehicles used for cleaning, inspecting, and repairing City streets and sewers. Work performed by Public Works is tracked through a paper filing system. Information and data related to the operation and maintenance of the MS4 system are compiled and summarized by the WPCC Superintendent for Small MS4 Annual Reports.

7.1 Field Staff Responsibilities

Public Works Department field staff is generally responsible for operating and maintaining the MS4 to protect the health and safety of Tiffin residents. Specific responsibilities are dependent on position and task. MS4 inspection and maintenance crews are responsible for the following tasks:

- Collection and reporting of complete and accurate information;
- Proper care and use of City equipment;
- Proper care and use of City provided safety equipment;
- Documentation and reporting of results;
- Proper follow-up with other Public Works Department personnel and/or residents;
- Utilization of appropriate safety measures at the Public Works Department and during field work, including the maintenance garage and work spaces; and
- Returning fieldwork sites to conditions safe for pedestrians and vehicular traffic.

7.2 Management Responsibilities

Management responsibilities include providing for the needs of the Public Works Department staff and meeting the requirements of higher authorities. Managerial responsibilities include:

- Administrate and supervise the operation and maintenance of the MS4;
- Develop and submit annual budgets for operating and capital expenditures;
- Responsibly administrate funds for purchasing and personnel;
- Provide necessary training for proper operation and maintenance of the MS4;
- Provide safety equipment and follow-up on the use of safety procedures;

- Submit information to meet reporting requirements of internal and external departments.

8.0 EMERGENCY OPERATIONS

8.1 Reporting Spills

City personnel at all levels must be kept informed of the reporting procedures for illicit discharges and spills. All spills and illicit discharges identified must be reported to an employee's supervisor. Spills must be cleaned up promptly using proper dry clean up methods. Supervisors must notify the WPCC and the City Engineer when an illicit discharge is identified or a spill requires outside clean-up assistance. Prompt reporting ensures that spill clean-up can be quickly implemented to minimize environmental damage.

A significant spill or leak may include releases of oil, used oil, gasoline, or diesel fuel in excess of reportable quantities under Section 311 of the Clean Water Act (See 40 CFR110.10 and CFR 117.21) and Section 102 of CERCLA (See 40 CFR 302.4). Reportable spills occurring three years prior to the effective date of the USEPA's NPDES Small MS4 General Permit must be identified in the SWMP.

A spill in excess of 25 gallons must be reported to Ohio EPA within 30 minutes.

OHIO EPA EMERGENCY RESPONSE: (800) 282-9378

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CITY OF TIFFIN, OHIO

CATCH BASIN INSPECTION PROCEDURE

1. Determine and establish traffic control measures and safety equipment needed.
2. Use shovels to remove debris from the top of the catch basin.
3. Place debris in the back of truck. (The debris will later be sent to the landfill).
4. Visually inspect the catch basin or manhole.
5. If the catch basin requires repair or vacuuming, notify the Public Works Superintendent to complete a work order.
6. Remove traffic control devices, if necessary.
7. Once the entire street is inspected, record date of inspection on log sheet.



CITY OF TIFFIN, OHIO

CATCH BASIN/ MS4 CLEANING PART 1: JETTING PROCEDURE

1. Fill tanks on jetting truck with water.
2. Drive to job site. Operator directs the driver to position the front of the Vactor truck a few feet from the manhole.
3. Determine and establish traffic control measures and safety equipment needed.
4. Remove manhole cover using manhole pick(s).
5. Remove safety chain attached to the guide arm and use the guide arm lever to move the arm perpendicular to the side of the hose reel.
6. Operator directs the driver to position the guide arm directly above manhole cover.
7. Move the hose reel around so that it is in a position to least disturb traffic.
8. Lock hose reel once it is in proper location.
9. Remove rodder hose guard rope from rodder hose reel guide arm lever and place on ground.
10. Choose and attach proper jet for the job.
11. Unhook latch to remove the jet nozzle from the guide arm.
12. Slowly lower the hose and hose guard (already wrapped around hose) down to the manhole and latch the guide arm pulley around the hose to control the horizontal hose direction.
13. Turn on rodder jet power.
14. Use control panel on hose reel to switch the reel control to uncoil the rodder hose and lower the hose into the manhole using the hose reel speed control.
15. Use a rope to secure the rodder hose guard in position by attaching to front of the truck. (This helps prevent the rodder hose from rubbing against the manhole walls.)
16. Turn on the rodder pump switch on the control panel to send water through the rodder hose from the water tanks.
17. One operator remove upstream manhole cover using manhole pick(s). (Having the upstream manhole open also helps control arm pressure.)
18. Send the rodder hose through the pipe to the upstream manhole.
19. Use the guider arm to uncoil the hose from the reel.
20. Use the throttle on the control plane to control the water pressure RPM's to the jet nozzle and the hose reel speed to control the rate the hose uncoils.
21. Operator at the upstream manhole listen and look for jet rodder hose to reach upstream manhole.



CITY OF TIFFIN, OHIO

CATCH BASIN/ MS4 CLEANING PART 1: JETTING PROCEDURE

22. When the jet rodder hose reaches upstream manhole, operator signals to the operator at the control panel to start to bring the jet rodder hose back.
23. Replace upstream manhole cover.
24. Switch reel control to reverse reel direction.
25. Use throttle control to raise and lower water pressure.
26. Use hose reel speed control to guide arm to recoil hose and pull debris back to manhole. (Be sure to monitor motor RPM and pressure gauges on control panel.)
27. When cleaning is complete, turn off rodder jet power and switch the rodder pump switch off.
28. Remove jet rodder hose from manhole, unlatch the pulley on the guide arm from around the hose and hook the latch to secure the jet nozzle to guide arm.
29. Tie up the rodder hose guard support tube rope to the guide arm level and push the guide arm to the side.
30. Reattach safety chain on hose reel to guide arm lever.
31. Remove any bricks, tiles, rock, etc., that are jet rodded from upstream into the manhole by using a claw, spoon, or vacuum (see Sewer Cleaning–Vacuuming Procedures).
32. Replace manhole cover.
33. Unlock hose reel lock switch and use the hose reel control to move the hose reel back to its original position.
34. Record on log that sewer was jet cleaned.



CITY OF TIFFIN, OHIO

CATCH BASIN/ MS4 CLEANING PART 2: VACUUMING PROCEDURE

1. Unhook metal cylinders and retrieve safety ring clamps from the side of the truck.
2. Remove the suction hose at the front passenger side of truck by disconnecting the safety ring clamps.
3. Lock tailgate on the debris body control panel.
4. Check for overhead wires and other obstruction if you need to move the boom arm to get the vacuum above the manhole.
5. Use the control panel on the hose reel to maneuver the boom arm.
6. Using the ring clamps, attach as many cylinders as needed to reach the bottom of the manhole.
7. Place metal cylinders into manhole so that the top sticks out. (Make sure that the ring clamps do not touch the sides of the manhole.)
8. Attach the suction hose to the top of the metal cylinders using a ring clamp.
9. Turn on the vacuum ignition and control the vacuum suction by turning the throttle control knob on the control panel to the desire idle, mid-range of full position.
10. Operate the suction piping position (vertical and horizontal) using the boom arm controller on the control panel and manual guidance to collect debris in manhole.
11. Use the relief sewer to turn off suction without completely turning the ignition, so that a light suction force holds debris in hose instead of dropping back into the manhole.
12. Lift the suction pipe out of the manhole by using the boom arm.
13. Carefully place the serrated edge of the suction piping on the ground.
14. Disassemble bottom clamp on metal cylinders and secure in proper location on the truck.
15. Move the boom arm back into its proper location and reclamp the suction hose back onto the truck.
16. Disengage the vacuum ignition.
17. Record sewer cleaning on log.
18. Remove traffic control devices, if necessary.



CITY OF TIFFIN, OHIO

CATCH BASIN REPAIR PROCEDURE

1. Determine and establish traffic control measures and safety equipment needed.
2. Remove catch basin cover.
3. Use spray paint to indicate where to cut the catch basin.
4. Use a concrete saw to cut out the catch basin.
5. Use a jack hammer to loosen the cast-in-place and the wall.
6. Remove the curb.
7. Remove the cast-in-place and portions of the walls that require replacement.
8. Place the large debris into the truck.
9. Vacuum truck to come to site and vacuum the remaining debris.
10. If needed, replace the pipe.
11. Unload bricks from truck and place around catch basin.
12. Mix the mortar.
13. Place a layer of mortar, then place bricks with a small gap between them to build the walls.
(Sometimes the new bricks can be placed on the existing bricks, if the entire wall did not need to be removed.)
14. Tap bricks into place with a brick hammer.
15. Check the level of the bricks between each layer and be sure to change the brick direction between each layer.
16. Repeat Steps 11-15 until the wall is at the desired height to fit a cast-in-place.
17. Cover the sides of the bricks with mortar. (It may also be necessary to manipulate the bricks in order to reach proper measurement for the cast-in-place to fit.)
18. Once wall is set, fill outside of wall with stones to the height of the brick.
19. Set and adjust the cast-in-place.
20. Concrete in the cast-in-place.
21. Use stone to fill in around the cast-in-place.
22. Fix curb.
23. Contact street department to replace the asphalt.
24. Fix any landscape that was disturbed during construction.
25. Record that catch basin was repaired.



CITY OF TIFFIN, OHIO

SPOILS DEWATERING AND DISPOSAL PROCEDURE

1. Drive truck to vactor pit at WPCC. Operator helps guide the driver to back up the truck to the vactor pit.
2. Turn wash out lever.
3. Unlock door for water to drain.
4. Lift debris body up so spoils fall into the pit.
5. On the front of the truck, turn rodder off and turn water on to spray out the debris.
6. Check in the debris body to see if all of the debris is out. (If there is debris remaining, use a hose to wash it out.)
7. Close the door and clean the back of the door.
8. Turn valve off (debris wash out) in back.
9. Turn on fan and gun valve on and make sure rodder is still off.
10. Pull plugs on side of truck to clean the fan.
11. Turn gun and fan valve off and turn rodder back on.
12. Use the shovels in the vactor pit to help drain the water.
13. Scoop debris into a pile in the vactor pit.
14. Once the debris dries, move it to a dumpster inside the WPCC. (The dumpster gets emptied at a landfill.)

MCM #6 – POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Section 3 – Tiffin Public Works Maintenance Facility Stormwater Pollution Prevention Plan (SWPPP)



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Stormwater Pollution Prevention Plan

for:

Tiffin Public Works Maintenance Facility
601 Miami Street
Tiffin, OH 44883
(419) 448-5430

SWPPP Contact(s):

Public Works Superintendent
Brandon Burner, P.E., PMP
601 Miami Street
Tiffin, OH 44883
(419) 448-5430
publicworks@tiffinohio.gov

SWPPP Preparation Date:

10/ 18 / 2018

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SECTION 1: FACILITY DESCRIPTION AND CONTACT INFORMATION

1.1 Facility Information

Facility Information

Name of Facility: Tiffin Public Works Maintenance Facility

Street: 601 Miami St.

City: Tiffin

State: OH

ZIP Code: 44883

County: Seneca

Ohio EPA Facility Permit Number: (if covered under a previous permit)

Latitude/Longitude (Use **one** of three possible formats, and specify method)

Latitude:

Longitude:

1. 41 ° 6 ' 59" N (degrees, minutes, seconds)

1. 83 ° 12 ' 2" W (degrees, minutes, seconds)

2. __ ° __ ' __ " N (degrees, minutes, decimal)

2. __ ° __ ' __ " W (degrees, minutes, decimal)

3. __ . __ __ ° N (decimal)

3. __ . __ __ ° W (decimal)

Method for determining latitude/longitude (check one):

☒ USGS topographic map (specify scale: 1:18,056)

☐ Web site

☐ GPS

☐ Other (please specify):

Estimated area of industrial activity at site exposed to stormwater: 3.97

(acres)

Discharge Information

Does this facility discharge stormwater into an MS4? ☒ Yes ☐ No

If yes, name of MS4 operator: City of Tiffin

Name(s) of water(s) that receive stormwater from your facility E. Br. Of E. Br. Of Wolf Creek

Are any of your stormwater discharges subject to effluent guidelines? ☐ Yes ☒ No

If Yes, which guidelines apply? N.A.

Primary SIC Code or 2-letter Activity Code: 4111-4173

(refer to Appendix D of OHR000006)

Identify your applicable sector and subsector: Sector P – Land Transportation and Warehousing

1.2 Contact Information/Responsible Parties

Facility Operator (s):

Name: Mike Hoffman
Address: 601 Miami St.
City, State, Zip Code: Tiffin, OH 44883
Telephone Number: (419) 448-5430
Email address: publicworks@tiffinohio.gov
Fax number: (419) 448-5436

Facility Owner (s):

Name: City of Tiffin
Address: 51 E Market Street
City, State, Zip Code: Tiffin, OH, 448833
Telephone Number: (419) 448-5404

SWPPP Contact:

Name: Mike Hoffman
Telephone number: (419) 448-5430
Email address: publicworks@tiffinohio.gov
Fax number: (419) 448-5436

1.3 Stormwater Pollution Prevention Team

Staff Names	Individual Responsibilities
Mike Hoffman Superintendent	Coordinate SWPPP development, review and submit required reporting, ensure that initial and annual site assessments are conducted, make changes to the site or SWPPP if necessary. Primary contact for SWPPP.
Nick Webster Assistant Superintendent	Assist Superintendent in SWPPP development, oversee good housekeeping efforts, participate in initial and annual site assessments, and ensure that changes to the site or SWPPP are reported to the Superintendent.
Street Division and Sewer Division Crews	Implement and maintain stormwater control measures and good housekeeping efforts.

1.4 Activities at the Facility

The Public Works Maintenance Facility (facility) is used as the base of operations for the City of Tiffin Public Works Department. It consists of a maintenance garage, administrative offices, fueling station, paved parking lot, gravel storage lot, storage garage, and storage pole barn. The facility contains the following Public Works operations: vehicle maintenance and storage, vehicle fueling, sewer maintenance,

street maintenance, and off site field waste collection. Equipment and materials used to maintain, repair, and build City infrastructure are stored both indoors and outdoors at the facility. It also houses the Public Works staff, including Street and Sewer divisions.

1.5 General Location Map

The general location map (USGS quadrangle map) of the facility is presented in **Attachment A** of this SWPPP. This figure identifies the location of the 601 Miami Street property and all receiving waters for stormwater discharges. Stormwater flow from the facility is conveyed to the Westgate Area Detention Basin which discharges to the East Branch of East Branch Of Wolf Creek.

1.6 Site Map

The facility's site map is included in **Attachment B**. This map identifies the following:

- Significant structures and impervious surfaces
- Directions of stormwater flow,
- Potential pollutant sources,
- Any spills or leaks (no known spills/leaks),
- Stormwater monitoring points,
- MS4 components, including structural control measures,
- Industrial activities exposed to stormwater runoff,
- Spill Kit locations.

SECTION 2: POTENTIAL POLLUTANT SOURCES

2.1 Industrial Activity and Associated Pollutants

Industrial Activity	Associated Pollutants
Vehicle fueling	Unleaded gasoline and diesel fuel
Vehicle washing	Wash water, soaps, detergents, grease, oil or other residue
Vehicle storage	Oils/lubricants
Vehicle maintenance	Used motor oil, anti-freeze
Chemical storage	Pesticides, herbicides

2.2 Spills and Leaks

Areas of Site Where Potential Spills/Leaks Could Occur

Location	Outfalls
Bulk fluid unloading area	Storm ¹ —See Site Map in Attachment B
Fueling station	Storm ² —See Site Map in Attachment B .

¹A spill or leak would potentially discharge to the northeast storm catch basin along Allen Street. This storm line discharges into the Westgate Area Detention Basin – refer to **Attachment A** for location.

²A spill or leak would potentially discharge to the southeast storm catch basin behind the maintenance garage. This storm line discharges into the Westgate Area Detention basin – refer to **Attachment A** for location.

Description of Past Spills/Leaks

Date	Description	Outfalls
NO SPILLS		

2.3 Non-Stormwater Discharges Documentation

- Date of evaluation: 2015
- Description of the evaluation criteria used: Ohio EPA performed dye testing and site inspection in 2009 to identify and evaluate flow connections. Onsite sanitary drains were confirmed to discharge to sanitary sewer.
- List of the outfalls or onsite drainage points that were directly observed during the evaluation: Onsite sanitary drains and plumbing lines.
- Different types of non-stormwater discharge(s) and source locations: There are no non-stormwater discharges from the facility.
- Action(s) taken, such as a list of control measures used to eliminate unauthorized discharge(s), if any were identified. For example, a floor drain was sealed, a sink drain was re-routed to sanitary, or an NPDES permit application was submitted for an unauthorized cooling water discharge:

2.4 *Salt Storage*

This facility does not have salt storage.

2.5 *Sampling Data Summary*

The facility has not conducted stormwater sampling. If records are required in the future, stormwater sampling data shall be kept on-site or in a readily accessible location.

SECTION 3: STORMWATER CONTROL MEASURES

3.1 *Minimize Exposure*

Public Works employees shall minimize the potential for exposure of industrial activities to stormwater runoff. Methods of minimizing exposure include:

- Locate bulk fluids (e.g. engine fluids, solvents, antifreeze, pesticides, etc.) indoors so leaks or spills are contained. See **Figure 3-1**. Refer to **Attachment B** for locations of fluid storage area and chemical storage area.
- Keep construction materials under cover and limit exposure to stormwater runoff. **Figure 3-2** shows utilization of storage pole barn.
- Perform vehicle or equipment maintenance indoors. Wash water shall drain to the sanitary sewer through drains inside the maintenance garage.
- Clean up spills promptly using dry absorbent materials. Dispose of absorbents immediately.
- Store leaking equipment or vehicles indoors or place drip pans beneath them.
- Conduct vehicle fueling activities on paved surface as shown in **Figure 3-3**.



Figure 3-1. Pesticide containers and application equipment kept in cabinets indoors



Figure 3-2. Construction materials kept under cover in storage pole barn



Figure 3-3. Fueling station located on pavement

3.2 *Good Housekeeping*

Good housekeeping is an ongoing effort by all Public Works staff. The following good housekeeping practices are implemented throughout the facility:

- Keep paved surfaces swept and orderly. General facility cleanup is performed weekly.
- Continue to dispose of trash and recyclables properly. This requires putting trash in appropriate containers and keeping containers covered. Dumpster should be plugged and free of leaks.
- Store drums and containers out of the way of maintenance operations to avoid spills.
- Regularly inspect the condition of drums, tanks, and containers for leaks.

3.3 Maintenance

Staff performs preventative maintenance on equipment and control structures to keep them in effective operating condition. Procedures for minimizing the discharge of pollutants include:

- Routine visual inspections of vehicle storage areas to ensure vehicles are in proper working condition. Check for any damage or leakage, or stained concrete.
- Clean out storm and sanitary drains regularly to prevent blockage and minimize storm water pollution. Trench drains in vehicle storage area should also be cleaned out. Drain cleaning is performed at least 2x per year.
- Maintain the integrity of secondary containment structures. Ensure cracks, openings or damage are not present.
- Clean secondary containment structures at least 2x per year, in conjunction with drain cleanings. Oil present in secondary containment basins shall be properly disposed of.

3.4 Spill Prevention and Response

The following measures are taken to minimize the potential for a spill:

- Clearly labeled containers. All fluid storage tanks, drums, and buckets are plainly labeled (Fertilizers, Used Oil, Water, etc.). See **Figure 3-4**.
- *Secondary containment*. Fluid containers stored indoors and outdoors are secondarily contained. Aboveground Storage Tanks (ASTs) are double walled to protect against leaks. Drums and totes are stored indoors in the maintenance garage where leaks or spills would enter the sanitary sewer via floor drains. Drums are stored on secondary containment pallets in the garage.
- *Spill cleanup*. Spill Kits are available throughout the facility. Sorbent materials are strategically located in case of small spills as depicted in **Figure 3-5**. Spent cleanup materials are disposed of properly.
- *Leak prevention*. ASTs at fueling station are equipped with leak detection sensors and shown in **Figure 3-6**. AST emergency shutoff is also located north of the fueling station. Refer to **Figure 3-7**.



Figure 3-4. Labeled oil totes located inside maintenance garage



Figure 3-5. Bulk fluid loading area including sorbent material secondary



Figure 3-6. AST leak detection system at fueling station

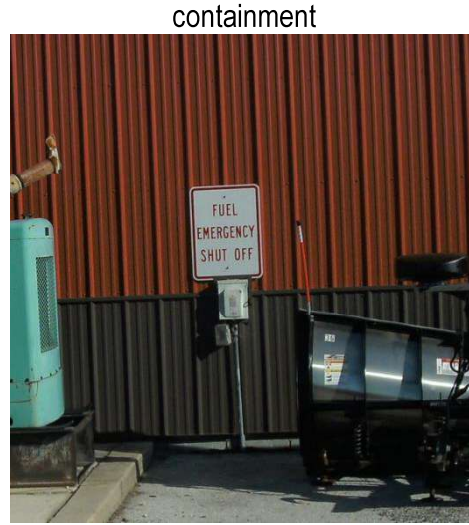


Figure 3-7. AST emergency shut off

If an accidental spill should occur, immediate action shall be taken by facility personnel to contain and remove the spilled material. Any spill or discharge entering surface waters shall be recorded, and notice of the spill shall be provided to the appropriate reporting agency within 24 hours of the spill.

3.5 Erosion and Sediment Controls

All surfaces at the facility are paved with concrete or stabilized with gravel, landscaping materials, or natural vegetation. No signs of erosion were observed during initial site assessment. Site areas will be evaluated for potential erosion problems during future inspections.

3.6 Management of Runoff

There are no site detention ponds or drainage structures present at the facility. Pavement at the facility provides protection against infiltration of vehicle fluids. Adjacent areas are urbanized and consist of public roads and residential areas.

3.7 Salt Storage Piles or Piles Containing Salt

This site does not have salt storage piles or piles containing salt.

3.8 MSGP Sector-Specific Non-Numeric Effluent Limits

Compliance with MSGP Sector-Specific non-numeric effluent limits for Sector P Land Transportation and Warehousing is achieved through the following measures:

- *Vehicle and Equipment Storage Areas.* Vehicles and equipment are mainly stored inside the maintenance garage or the storage garage in the back lot. Drip pans shall be used under vehicles/equipment when necessary. Absorbent materials are used for liquid clean up and disposed of properly. Paved surfaces are kept clean and orderly.

- *Fueling Areas.* The fueling station is located on pavement and is subject to stormwater runoff. One storm water catch basin is located down gradient from the fueling area and staff are aware of spill kit and absorbent material locations to protect catch basins from receiving potential spills. All fueling activities are required to be attended at all times.
- *Material Storage Areas.* Chemical materials and bulk fluids are plainly labeled, kept indoors, and located with secondary containment structures. Interior floor and trench drains are connected to the sanitary sewer. Diesel and unleaded gasoline are stored in double-walled tanks outdoors and are equipped with leak detection systems. Earthwork materials including crushed stone and sand are stored inside the storage pole barn. Other miscellaneous materials including cold patch, stone, excavation materials, and street sweepings are temporarily stored in neat piles on the gravel lot outside. Run-off from the street sweepings and excavated materials temporary storage piles drains to a catch basin that is connected to the sanitary sewer.
- *Vehicle and Equipment Cleaning Areas.* Equipment and vehicles are washed in the indoor maintenance garage with no exposure to stormwater. Wash water is captured in floor trench drains which connect to the mainline sanitary sewer.
- *Vehicle and Equipment Maintenance Areas.* Maintenance work is performed on equipment and vehicles inside the maintenance garage. Maintenance areas are kept clean and orderly.
- *Employee Training.* Refer to Section 3.9 for employee training measures.

3.9 Employee Training

Public Works Superintendent and Assistant Superintendent are responsible for conducting stormwater training and educating employees of updated control measures. Any Public Works employee who utilizes the Public Works maintenance facility as a base of operations is expected to be trained. City staff who utilize the facility for vehicle fueling activities shall also be educated on spill prevention and cleanup control measures.

Stormwater training shall be conducted upon hire, after any updates or additions to existing control measures, or annually. Topics covered during training sessions include contents of the facility SWPPP, control measures, spill containment and cleanup procedures, maintenance, inspection, reporting and documentation requirements. Training sessions should be documented using the employee training session log/ sign-in sheet. Training session log and sample agenda are included in **Attachment C**.

3.10 Non-Stormwater Discharges

Non-stormwater discharges do not exist at this site. Refer to **Section 2.3** of the SWPPP.

3.11 Waste, Garbage and Floatable Debris

Controls and procedures used to minimize discharges of waste, garbage and floatable debris include:

- A trash roll-off is located on gravel lot. The roll-off is covered when not in use. Refer to **Attachment B** for location.

- Waste excavated materials are separated and temporarily stored in neat piles on gravel lot. A sanitary drain is located adjacent to street sweepings pile and shown in **Figure 3-8**. For waste pile locations, refer to Site Map included in **Attachment B**.
- Visual inspection and cleanup/sweeping of waste areas conducted weekly.
- Regular trash pickup and participation in local recycling programs.
- Transfer of street sweepings to landfill and scheduled pickup of excavated material.



Figure 3-8. Street sweepings pile and adjacent sanitary drain

3.12 Dust Generation and Vehicle Tracking of Industrial Materials

The following measures are used to minimize the generation of dust and off-site tracking of industrial materials:

- Pavement and gravel surfaces used as dust deterrent and soil stabilizing agents.
- Locate stored materials away from all roads and parking lots. Chemical products and bulk fluids kept indoors. Construction materials kept in neat piles away from roads.
- Wash vehicles and equipment inside maintenance garage to remove surface grit, oils or other off-site materials.

SECTION 4: SCHEDULES AND PROCEDURES FOR MONITORING

Analytical monitoring is currently not required at this site. In the event that future sampling is required, detailed procedures and reporting requirements shall be outlined in this SWPPP.

The outfall associated with the facility consists of a closed storm sewer along Miami Street and discharges to the Westgate Detention Basin. The location of these structures are depicted on the general location map in **Attachment A**. Access to storm water effluent from the facility prior to discharge into Westgate Detention Basin is shown on the general location map in **Attachment A** and is generally accessible.

SECTION 5: INSPECTIONS

This Section outlines the facility's procedures for performing inspections. Routine facility inspections consist of visually inspecting existing structural stormwater control measures to identify any pollution discharges to the MS4 system. Routine facility inspections are to be completed quarterly.

The stormwater discharge location evaluated during quarterly inspections is shown on the Site Map (**Attachment B**). Quarterly visual assessments are performed at this location. During the quarterly visual assessments, please note the following:

- The names of the person(s), or the positions of the person(s), responsible for inspection: **Public Works Superintendent and/or Assistant Superintendent.**
- The schedules to be used for conducting inspections: **Quarterly.**
- Specific areas of the facility to be inspected, including schedules for specific outfalls: **Southeast storm drain located on paved lot behind maintenance garage to be inspected quarterly. Please refer to Attachment B for visual monitoring location.**

Copies of the Stormwater Routine Facility Inspection Form, Quarterly Visual Assessment Form, and Quarterly Visual Assessment Guide are included in **Attachment C**. All inspection forms and records are to be kept onsite.

SECTION 7: SWPPP CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____ Title: _____

Signature: _____ Date: _____

SECTION 8: SWPPP MODIFICATIONS

This SWPPP is a “living” document and is required to be modified and updated, as necessary, in response to corrective actions or modifications. If the SWPPP is modified in response to a corrective action, then the certification statement in Section 7 must be re-signed. Any SWPPP modifications should be documented with a description, name of person making it, date and signature. See **Attachment C** for log of SWPPP modifications.

SWPPP ATTACHMENTS

Attachment A – General Location Map

Attachment B – Site Map

Attachment C – Additional SWPPP Documentation



U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



TIFFIN SOUTH QUADRANGLE
OHIO-SENECA CO.
7.5-MINUTE SERIES



Produced by the United States Geological Survey

North American Datum of 1983 (NAD83)
Horizontal datum: UTM, Zone 18N, Datum: NAD83, Projection: UTM
Vertical datum: UTM, Zone 18N, Datum: NAD83, Projection: UTM

This map is not a legal document. Boundary lines may be
generalized for this map scale. Please verify with government
agencies before using for legal purposes.

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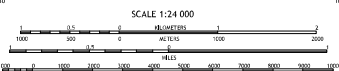
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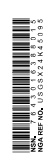
CONTOUR INTERVAL: 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1983
This map was produced in accordance with the
National Geospatial Program (U.S. Topographic Survey, 2011)
A metadata file associated with this product is located at
http://www.usgs.gov/metadata/



ROAD CLASSIFICATION	
Expressway	Local Connector
Secondary Hwy	Local Road
State	State Road
Interstate Route	US Route

1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
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TIFFIN SOUTH, OH
2016

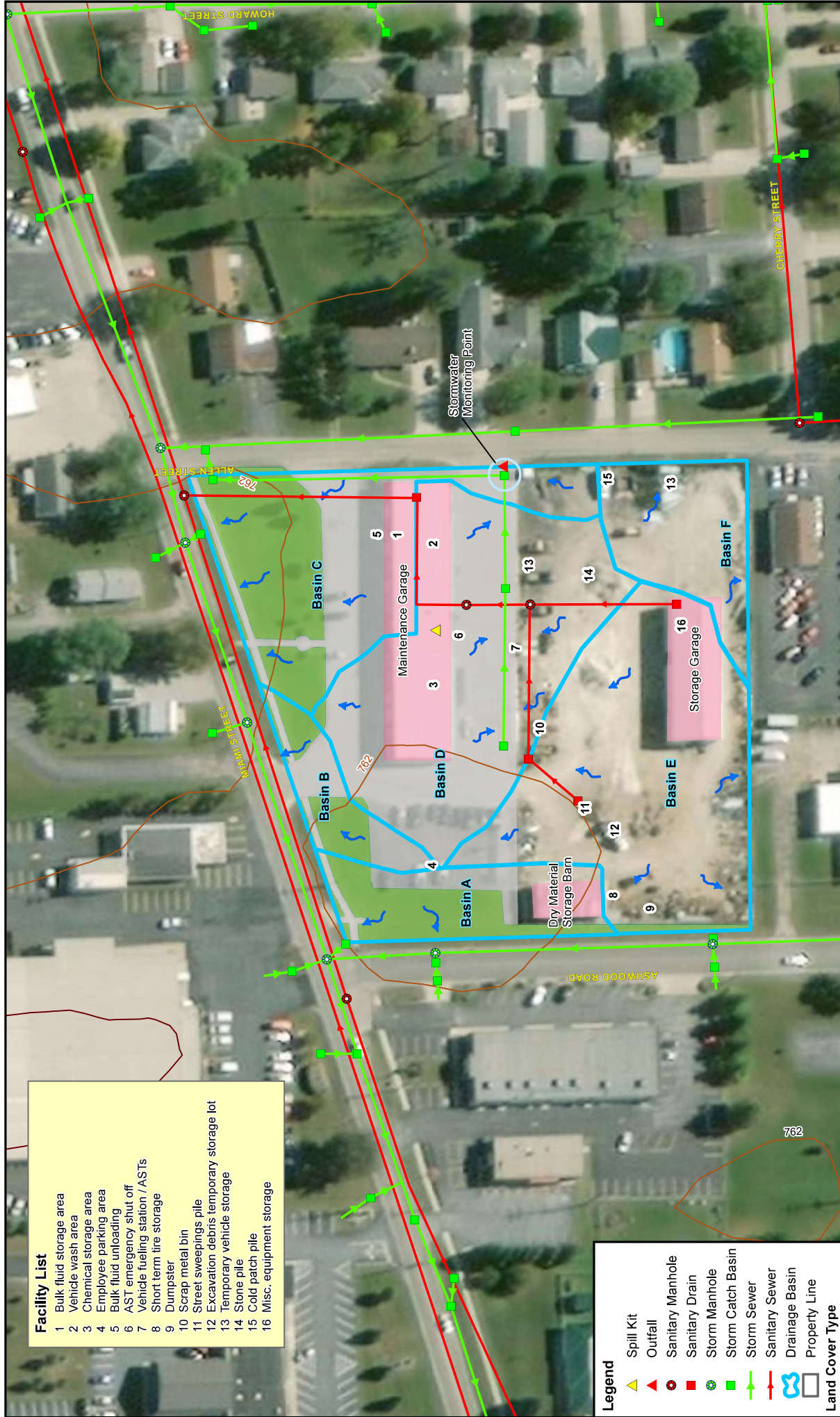


Facility List

- 1 Bulk fluid storage area
- 2 Vehicle wash area
- 3 Chemical storage area
- 4 Employee parking area
- 5 Bulk fluid unloading
- 6 AST emergency shut off
- 7 Vehicle fueling station / ASTs
- 8 Short term tire storage
- 9 Dumpster
- 10 Scrap metal bin
- 11 Street sweepings pile
- 12 Excavation debris temporary storage lot
- 13 Temporary vehicle storage
- 14 Stone pile
- 15 Cold patch pile
- 16 Misc. equipment storage

Legend

- Spill Kit
- Outfall
- Sanitary Manhole
- Sanitary Drain
- Storm Manhole
- Storm Catch Basin
- Storm Sewer
- Sanitary Sewer
- Drainage Basin
- Property Line
- Land Cover Type
- Roof
- Grass
- Pavement



AECOM

Attachment B
Public Works Maintenance Facility SWPPP
Site Map

Attachment C
Additional SWPPP Documentation

For:

Tiffin Public Works Maintenance Facility
601 Miami Street
Tiffin, OH 44883
(419) 448-5430

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C. Routine Facility Inspection Reports 3

D. Quarterly Visual Assessment Guide4

E. Quarterly Visual Assessment Reports 7

F. SWPPP Revision Log 8

A. Training Session Sample Agenda

MATERIALS

- Copy of SWPPP
- SWPPP Attachment C
- SWPPP Attachment B

DISCUSSION TOPICS

- | | |
|-------------------------------|--|
| Facility SWPPP | <ul style="list-style-type: none">▪ Storage location▪ General contents |
| Minimizing Exposure | <ul style="list-style-type: none">▪ Bulk fluids located indoors▪ Vehicle washing indoors▪ Herbicides, pesticides storage▪ Vehicle fueling on pavement▪ Leaking equipment/vehicles |
| Spill Prevention and Response | <ul style="list-style-type: none">▪ Spill kit location and use▪ Absorbent materials location and use▪ Labeling fluid containers▪ AST emergency shut-off▪ AST leak detection sensors▪ Spill reporting procedures |
| Good Housekeeping | <ul style="list-style-type: none">▪ Sweep paved surfaces▪ Dumpster/recycling areas |
| Maintenance | <ul style="list-style-type: none">▪ Drain cleanings▪ Containment structures – cabinets, oil drum basins |
| Inspections | <ul style="list-style-type: none">▪ Routine facility inspections – quarterly▪ Stormwater discharge inspections – quarterly<ul style="list-style-type: none">- Outfall location- Pollutant indicators |
| Reporting and Documentation | <ul style="list-style-type: none">▪ Routine facility inspection forms▪ Stormwater discharge inspection forms▪ SWPPP revisions |
- *Fill in Employee Training Log/ sign-in sheet

B. Employee Training Logs

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

C. Routine Facility Inspection Reports

Stormwater Routine Facility Inspection Form

General Information			
Facility Name			
Date of Inspection		Start/End Time	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Weather Information			
Weather at time of this inspection?			
<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Fog <input type="checkbox"/> Snow <input type="checkbox"/> High Winds <input type="checkbox"/> Other: _____ Temperature: _____			
Have any previously unidentified discharges of pollutants occurred since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: _____			
Are there any discharges occurring at the time of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: _____			

Control Measures

- Number the structural stormwater control measures identified in your SWPPP on your site map and list them below (add as many control measures as are implemented on-site). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required control measures at your facility.

	Structural Control Measure	Control Measure is Operating Effectively?	If No, Check X if Applicable	Comments/ Corrective Action
1	Bulk Fluid Storage Area	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Signs of leakage/spills <input type="checkbox"/> Containers damaged, rusted, deteriorated <input type="checkbox"/> Secondary containment structures damaged	
2	Vehicle Wash Area	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Signs of leakage/spills <input type="checkbox"/> Accumulated debris	
3	Chemical Storage Area	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Signs of leakage/spills <input type="checkbox"/> Containers damaged, rusted, deteriorated <input type="checkbox"/> Cabinets damaged, rusted, deteriorated	
4	ASTs/ Fueling Station	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Signs of leakage/spills <input type="checkbox"/> Tanks damaged or deteriorated	

	Structural Control Measure	Control Measure is Operating Effectively?	If No, Check X if Applicable	Comments/ Corrective Action
5	Dumpster and Recycling Areas	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Signs of leakage/spills <input type="checkbox"/> Containers damaged, rusted, or deteriorated	
6	Scrap Metal Bin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Signs of leakage/spills <input type="checkbox"/> Containers damaged, rusted, or deteriorated	
7	Temporary Vehicle Storage (Gravel Parking Lot)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Signs of leakage/spills <input type="checkbox"/> Vehicles leaking, rusted, deteriorated	
8	Cold patch pile	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Signs of leakage/spills	
9	Other _____			

Discharge Points

At discharge points, describe any evidence of, or the potential for, pollutants entering the drainage system. Also describe observations regarding the physical condition of and around all outfalls, including any flow dissipation devices, and evidence of pollutants in discharges and/or the receiving water. Identify if any corrective action is needed.

Notes

D. Quarterly Visual Assessment Guide

QUARTERLY VISUAL ASSESSMENT GUIDE

For Industrial Storm Water at Municipal Facilities

Read Before You Sample

1. Consult Site Map in SWPPP to identify outfall locations and ID numbers
2. Have one clean, clear glass or plastic jar per outfall. Use only glass if you expect oil & grease.
3. Label jars with outfall ID numbers
4. Carry a watch or cell phone so you can record the time and a clipboard and pen for writing
5. Ensure you have all gear necessary to collect samples safely (rain coat, sampling pole, etc.)
6. Complete one visual assessment form per sample
7. If you observe signs of pollution, note what is occurring within the drainage area to identify potential sources and opportunities to improve control measures
8. You are not required to keep samples once observation is documented, however you may wish to photograph the sample to include on reporting form
9. Consult the rain gauge on site to record the rainfall amount

When and Where to Sample

- The storm event or snowmelt sampled must create a discharge.
- The event sampled is to be preceded by 72 or more hours of dry weather (no discharge).
- Take sample within the first 30 minutes of discharge. If not feasible, document why.
- Sample storm water as it is discharging from your facility.
- Take one sample per outfall, unless you have substantially-identical outfalls. For substantially-identical outfalls, only sample one outfall amongst the group of substantially-identical outfalls, but rotate which outfall is sampled each quarter.
- Do not collect water in retention ponds or from the receiving stream. If the outlet is submerged or inaccessible, take sample from the first manhole upstream.

CLARITY



SOLIDS & FOAM



Floating Solids



Settled Solids

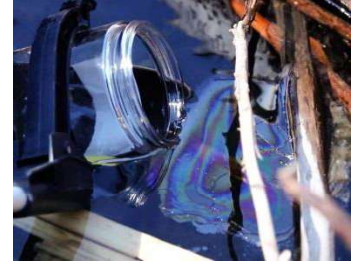


Suspended Solids



Foam

OIL SHEEN



E. Quarterly Visual Assessment Reports

Quarterly Visual Assessment Form

(Complete a separate form for each outfall you assess)

Name of Facility: Tiffin Public Works Maintenance Facility

Outfall Location: Southeast catch basin behind maintenance garage.

Person(s)/Title(s) collecting sample:

Person(s)/Title(s) examining sample:

Date & Time Discharge Began:

Date & Time Sample Collected:

Date & Time Sample Examined:

Substitute Sample? ☐ No ☐ YesNature of Discharge: ☐ Rainfall ☐ Snowmelt

If rainfall: Rainfall Amount:

Previous Storm Ended > 72 hours ☐ Yes ☐ No* (explain):
Before Start of This Storm?**Pollutants Observed**Color ☐ None ☐ Other (describe): _____Odor ☐ None ☐ Musty ☐ Sewage ☐ Sulfur ☐ Sour ☐ Petroleum/Gas
☐ Solvents ☐ Other (describe): _____Clarity ☐ Clear ☐ Slightly Cloudy ☐ Cloudy ☐ Opaque ☐ OtherFloating Solids ☐ No ☐ Yes (describe): _____Settled Solids** ☐ No ☐ Yes (describe): _____Suspended Solids ☐ No ☐ Yes (describe): _____Foam (gently shake sample) ☐ No ☐ Yes (describe): _____Oil Sheen ☐ None ☐ Flecks ☐ Globs ☐ Sheen ☐ Slick
☐ Other (describe): _____Other Obvious Indicators ☐ No ☐ Yes (describe): _____
of Stormwater Pollution

* The 72-hour interval can be waived when the previous storm did not yield a measurable discharge or if you are able to document (attach applicable documentation) that less than a 72-hour interval is representative of local storm events during the sampling period.

** Observe for settled solids after allowing the sample to sit for approximately one-half hour.

Identify probably sources of any observed stormwater contamination. Also, include any additional comments, descriptions of pictures taken, and any corrective actions necessary below (attach additional sheets as necessary).

A. Name:

B. Title:

C. Signature:

D. Date Signed:

F. SWPPP Revision Log

Rev. No.	Description of the Revision	Date of Revision	Revision Prepared by [Name(s) and Title]

MCM #6 – POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Section 4 – Tiffin Parks & Recreation Facility Stormwater Pollution Prevention Plan (SWPPP)



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Stormwater Pollution Prevention Plan

for:

Tiffin Parks and Recreation Facility
621 E. Market Street
Tiffin, OH 44883
(419) 448-5408

SWPPP Contact(s):

Parks Director
Bryce Kuhn
621 E. Market Street
Tiffin, OH 44883
(419) 448-5408
bkuhn@tiffinohio.gov

SWPPP Preparation Date:

10/ 18 / 2018

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SECTION 1: FACILITY DESCRIPTION AND CONTACT INFORMATION

1.1 Facility Information

Facility Information

Name of Facility: Tiffin Parks and Recreation Facility

Street: 621 E. Market St.

City: Tiffin

State: OH

ZIP Code: 44883

County: Seneca

Ohio EPA Facility Permit Number: (if covered under a previous permit)

Latitude/Longitude (Use **one** of three possible formats, and specify method)

Latitude:

Longitude:

1. 41° 7' 23" N (degrees, minutes, seconds)

1. 83° 9' 41" W (degrees, minutes, seconds)

2. __ ° __ ' __ " N (degrees, minutes, decimal)

2. __ ° __ ' __ " W (degrees, minutes, decimal)

3. __ . __ __ ° N (decimal)

3. __ . __ __ ° W (decimal)

Method for determining latitude/longitude (check one):

☒ USGS topographic map (specify scale: 1:18,056)

☐ Web site

☐ GPS

☐ Other (please specify):

Estimated area of industrial activity at site exposed to stormwater: 4.073 (acres)

Discharge Information

Does this facility discharge stormwater into an MS4? ☒ Yes ☐ No

If yes, name of MS4 operator: City of Tiffin

Name(s) of water(s) that receive stormwater from your facility: Willow Creek

Are any of your stormwater discharges subject to effluent guidelines? ☐ Yes ☒ No

If Yes, which guidelines apply? N.A.

Primary SIC Code or 2-letter Activity Code: 4111-4173

(refer to Appendix D of OHR000006)

Identify your applicable sector and subsector: Sector P – Land Transportation and Warehousing

1.2 Contact Information/Responsible Parties

Facility Operator (s):

Name: Bryce Kuhn
Address: 621 E. Market St.
City, State, Zip Code: Tiffin, OH 44883
Telephone Number: (419) 448-5408
Email address: bkuhn@tiffinohio.gov
Fax number: (419) 448-5438

Facility Owner (s):

Name: City of Tiffin
Address: 51 E Market Street
City, State, Zip Code: Tiffin, OH, 44883
Telephone Number: (419) 448 5404

SWPPP Contact:

Name: Bryce Kuhn
Telephone number: (419) 448-5408
Email address: bkuhn@tiffinohio.gov
Fax number: (419) 448-5438

1.3 Stormwater Pollution Prevention Team

Staff Names	Individual Responsibilities
Bryce Kuhn Parks Director	Coordinate SWPPP development, review and submit required reporting, ensure that initial and annual site assessments are conducted, make changes to the site or SWPPP if necessary. Primary contact for SWPPP.
Parks and Recreation Staff	Implement and maintain stormwater control measures and good housekeeping efforts.

1.4 Activities at the Facility

The Parks and Recreation Facility (facility) is used as the base of operations for the City of Tiffin Parks and Recreation Department. It consists of a main garage, administrative offices, gravel parking lot, two (2) storage pole barns, two (2) storage sheds, and salt storage dome. All equipment and materials used to maintain and develop Tiffin's parks are housed both indoors and outdoors at the facility. The facility contains the following Parks and Recreation operations: vehicle and equipment storage. The site is also utilized by Columbia Gas and the Tiffin Police Department for storage. Salt is kept at the facility and used by Tiffin Public Works street crews for winter roadway de-icing activities.

1.5 General Location Map

The general location map (USGS quadrangle map) of this facility is presented in **Attachment A** of this SWPPP. This figure identifies the location of the 621 E. Market Street property and all receiving waters for stormwater discharges. Stormwater flow from the facility is conveyed to Willow Creek.

1.6 Site Map

The facility's site map is included in **Attachment B**. This map identifies the following:

- Significant structures and impervious surfaces,
- Directions of stormwater flow,
- Potential pollutant sources,
- Any spills or leaks (no known spills/leaks),
- Stormwater monitoring points,
- MS4 components, including structural control measures,
- Industrial activities exposed to stormwater runoff.

SECTION 2: POTENTIAL POLLUTANT SOURCES

2.1 *Industrial Activity and Associated Pollutants*

Industrial Activity	Associated Pollutants
Salt / Deicing material storage	Road salt, Beet Heat
Vehicle storage	Oils/lubricants

2.2 *Spills and Leaks*

Areas of Site Where Potential Spills/Leaks Could Occur

Location	Outfalls
NONE	

Description of Past Spills/Leaks

Date	Description	Outfalls
NO SPILLS		

2.3 *Non-Stormwater Discharges Documentation*

- Date of evaluation: 5/2/2019
- Description of the evaluation criteria used: Dye testing
- List of the outfalls or onsite drainage points that were directly observed during the evaluation: See Attachment B for updated onsite drainage points
- Different types of non-stormwater discharge(s) and source locations: None observed.
- Action(s) taken, such as a list of control measures used to eliminate unauthorized discharge(s), if any were identified. For example, a floor drain was sealed, a sink drain was re-routed to sanitary, or an NPDES permit application was submitted for an unauthorized cooling water discharge:

2.4 *Salt Storage*

Three dedicated salt storage structures are located onsite. Salt is not exposed to stormwater under normal conditions.

2.5 *Sampling Data Summary*

The facility has not conducted stormwater sampling. If records are required in the future, stormwater sampling data shall be kept on-site or in a readily accessible location.

SECTION 3: STORMWATER CONTROL MEASURES

3.1 *Minimize Exposure*

Parks and Recreation employees shall minimize the potential for exposure of industrial activities to stormwater runoff. Methods of minimizing exposure include:

- Keep salt materials under cover and limit exposure to stormwater runoff. Store salt materials as necessary in storage dome (**Figure 3-1**), storage shed (**Figure 3-2**), or storage pole barn (**Figure 3-3**).
- Ensure dumpsters are covered with lids.
- Store leaking equipment or vehicles indoors or place drip pans beneath them.



Figure 3-1. Salt storage dome



Figure 3-2. Salt storage shed



Figure 3-3. Beet juice treated salt covered under storage pole barn

3.2 *Good Housekeeping*

Good housekeeping is an ongoing effort by all Parks and Recreation staff. The following good housekeeping practices are implemented throughout the facility:

- Regularly sweep remnant salt into covered salt structures.
- Clean Beet Heat residue and dispose of properly.
- Optimize salt quantities to ensure piles fit under covered storage.
- Continue to dispose of trash and recyclables properly. This requires putting trash in appropriate containers and keeping containers covered. Dumpster should be plugged and free of leaks.

3.3 *Maintenance*

Staff performs preventative maintenance on equipment and control structures to keep them in effective operating condition. Procedures for minimizing the discharge of pollutants include:

- Routine visual inspections of vehicle storage areas to ensure vehicles are in proper working condition. Check for any damage or leakage, or stained concrete.

- Clean out sanitary drains as needed to prevent blockage and minimize storm water pollution.
- Regularly inspect vegetative ditches for debris and clean out, if necessary.

3.4 *Spill Prevention and Response*

No bulk oil, petroleum, or chemical products are kept onsite. Beet juice tank is stored sufficiently away from storm drains and the edge of the property to avoid accidental spills. Employees shall continue to properly label fluid containers and store indoors.

If a spill should occur, immediate action shall be taken by facility personnel to contain and remove the spilled material. Any spill or discharge entering surface waters shall be recorded, and notice of the spill shall be provided to the appropriate reporting agency within 24 hours of the spill.

3.5 *Erosion and Sediment Controls*

All surfaces at the facility are stabilized with gavel, landscaping materials, or natural vegetation. Rip rap is used for flow dissipation at the outfall location in the northeast corner of the property lines. Site areas will be evaluated for potential erosion problems during future inspections and addressed if identified.

3.6 *Management of Runoff*

There are no site detention ponds or drainage structures present at the facility. Two vegetative ditches run along the boundaries of the property and discharge into the northeast corner of the site. Ditches are routinely inspected and maintained when necessary. Adjacent areas are urbanized and consist of public roads and residential areas.

3.7 *Salt Storage Piles or Piles Containing Salt*

The facility contains three covered salt storage structures. Road salt is kept inside the salt storage dome and salt storage shed. The storage pole barn is used to hold the finished de-icing material, a mixture between Beet Heat concentrate and road salt.

3.8 *MSGP Sector-Specific Non-Numeric Effluent Limits*

Compliance with MSGP Sector-Specific non-numeric effluent limits for Sector P Land Transportation and Warehousing is achieved through the following measures:

- *Vehicle and Equipment Storage Areas.* Vehicles and equipment are primarily stored indoors or kept under cover inside the main garage, two storage sheds, and two storage pole barns. Drip pans shall be used under vehicles/equipment when necessary. Surfaces are kept clean and orderly.
- *Material Storage Areas.* Fluid containers are plainly labeled and kept indoors. Beet juice storage tank (outdoors) is inspected for damage and maintained regularly. Dry clean up methods are utilized for any potential spills or leaks.
- *Employee Training.* Refer to Section 3.9 for employee training measures.

3.9 Employee Training

Parks and Recreation Director is responsible for conducting stormwater training and educating employees of updated control measures. Any Parks and Recreation employee who utilizes this facility as a base of operations is expected to be trained.

Stormwater training shall be conducted upon hire, after any updates or additions to existing control measures, or annually. Topics covered during training sessions include contents of the facility SWPPP, control measures, spill prevention and response, maintenance, inspection, reporting and documentation requirements. Training sessions should be documented using the employee training session log/ sign-in sheet. Training session log and sample agenda are included in **Attachment C**.

3.10 Non-Stormwater Discharges

Non-stormwater discharges do not exist at this site. Refer to **Section 2.3** of the SWPPP.

3.11 Waste, Garbage and Floatable Debris

Controls and procedures used to minimize discharges of waste, garbage and floatable debris include:

- Dumpsters located on gravel lot. Dumpsters are kept closed while not in use. Refer to **Attachment B** for locations.
- Waste materials separated and stored in neat piles on gravel lot. For waste pile locations, refer to Site Map included in **Attachment B**.
- Visual inspection and cleanup/sweeping of waste areas conducted weekly.
- Regular trash pickup and participation in local recycling programs.

3.12 Dust Generation and Vehicle Tracking of Industrial Materials

The following measures are used to minimize the generation of dust and off-site tracking of industrial materials:

- Gravel surfaces used as dust deterrent and soil stabilizing agents.
- Locate stored materials away from all roads and parking lots.
- Vehicles are washed at an alternate location (Public Works Maintenance Facility) to remove surface grit, oils or other off-site materials.

SECTION 4: SCHEDULES AND PROCEDURES FOR MONITORING

Analytical monitoring is currently not required at this site. In the event that future sampling is required, detailed procedures and reporting requirements shall be outlined in this SWPPP.

The outfall associated with the facility consists of two open vegetative ditches which discharge into the MS4 at the northeast corner of the site. The location of these structures are depicted on the Site Map in **Attachment B**. Access to storm water effluent from the facility prior to discharge into the MS4 is generally accessible.

SECTION 5: INSPECTIONS

This Section outlines the facility's procedures for performing inspections. Routine facility inspections consist of visually inspecting existing structural stormwater control measures to identify any pollution discharges to the MS4 system. Routine facility inspections are to be completed quarterly.

The stormwater discharge location evaluated during quarterly inspections is shown on the Site Map (**Attachment B**). Quarterly visual assessments are performed at this location. During the quarterly visual assessments, please note the following:

- The names of the person(s), or the positions of the person(s), responsible for inspection: **Parks and Recreation Director**.
- The schedules to be used for conducting inspections: **Quarterly**.
- Specific areas of the facility to be inspected, including schedules for specific outfalls: **Northeast open outfall to be inspected quarterly. Please refer to Attachment B for visual monitoring location.**

Copies of the Stormwater Routine Facility Inspection Form, Quarterly Visual Assessment Form, and Quarterly Visual Assessment Guide are included in **Attachment C**. All inspection forms and records are to be kept onsite.

SECTION 7: SWPPP CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____ Title: _____

Signature: _____ Date: _____

SECTION 8: SWPPP MODIFICATIONS

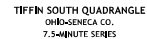
This SWPPP is a “living” document and is required to be modified and updated, as necessary, in response to corrective actions or modifications. If the SWPPP is modified in response to a corrective action, then the certification statement in Section 7 must be re-signed. Any SWPPP modifications should be documented with a description, name of person making it, date and signature. See **Attachment C** for log of SWPPP revisions.

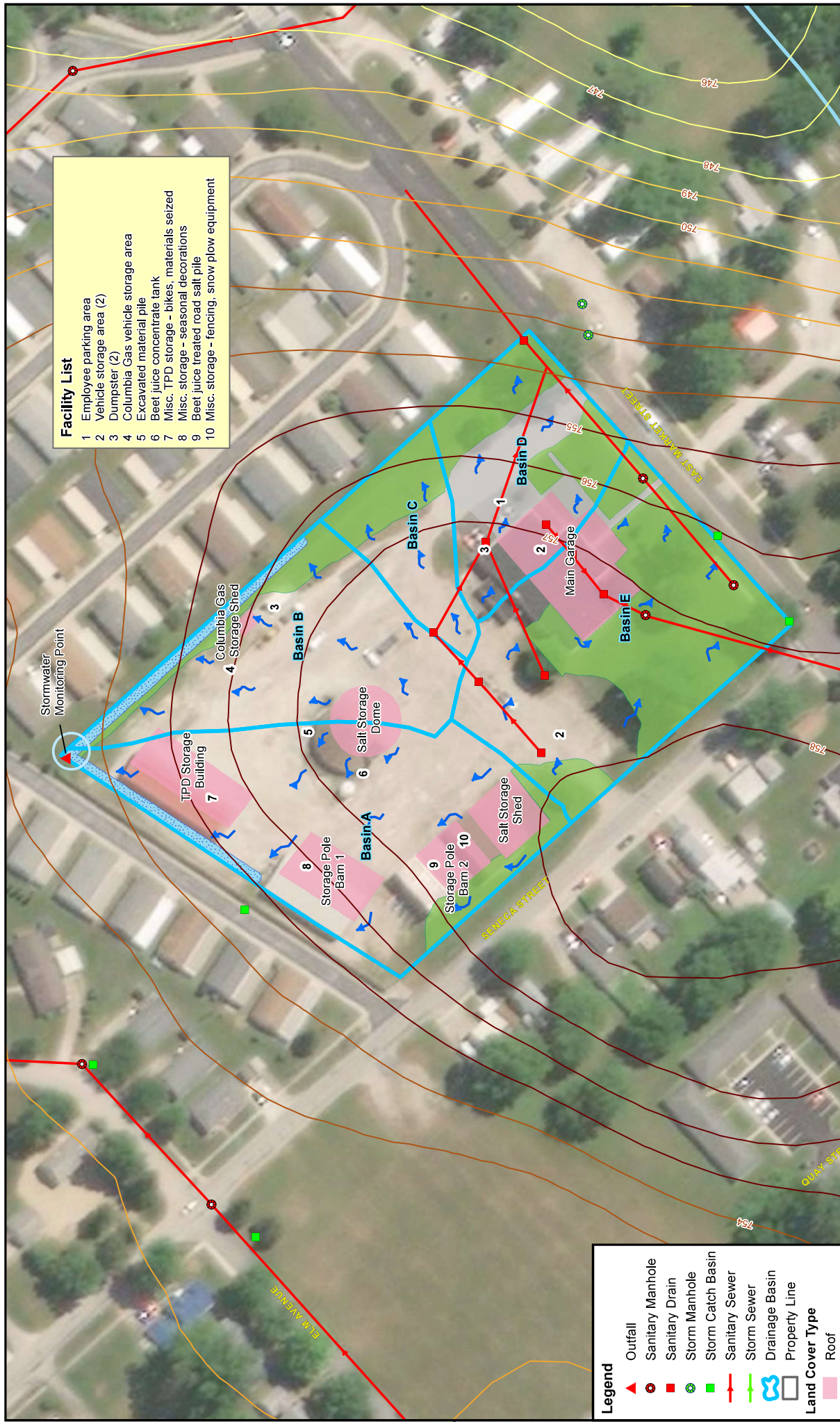
SWPPP ATTACHMENTS

Attachment A – General Location Map

Attachment B – Site Map

Attachment C – Additional SWPPP Documentation





- Facility List**
- 1 Employee parking area
 - 2 Vehicle storage area (2)
 - 3 Dumpster (2)
 - 4 Columbia Gas vehicle storage area
 - 5 Excavated material pile
 - 6 Beet juice concentrate tank
 - 7 Misc. TPD storage - bikes, materials seized
 - 8 Misc. storage - seasonal decorations
 - 9 Beet juice treated road salt pile
 - 10 Misc. storage - fencing, snow plow equipment

- Legend**
- Outfall
 - Sanitary Manhole
 - Sanitary Drain
 - Storm Manhole
 - Storm Catch Basin
 - Sanitary Sewer
 - Storm Sewer
 - Drainage Basin
 - Property Line
 - Land Cover Type**
 - Roof
 - Grass
 - Pavement
 - Vegetative Ditch

Attachment C
Additional SWPPP Documentation

For:

Tiffin Parks and Recreation Facility
621 E. Market Street
Tiffin, OH 44883
(419) 448-5408

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B. Employee Training Logs.....2

C. Routine Facility Inspection Reports 3

D. Quarterly Visual Assessment Guide4

E. Quarterly Visual Assessment Reports 7

F. SWPPP Revision Log 8

A. Training Session Sample Agenda

MATERIALS

- Copy of SWPPP
- SWPPP Attachment B
- SWPPP Attachment C

DISCUSSION TOPICS

- | | |
|-------------------------------|--|
| Facility SWPPP | <ul style="list-style-type: none">▪ Storage location▪ General contents |
| Minimizing Exposure | <ul style="list-style-type: none">▪ Keep salt materials under cover▪ Cover dumpsters▪ Leaking equipment/vehicles |
| Spill Prevention and Response | <ul style="list-style-type: none">▪ Label fluid containers, drums, tanks▪ Store liquids out of way▪ Emergency spill reporting procedures |
| Good Housekeeping | <ul style="list-style-type: none">▪ Sweep up remnant salt and beet juice▪ Dumpster/recycling areas |
| Maintenance | <ul style="list-style-type: none">▪ Drain cleanings▪ Vegetative ditches |
| Inspections | <ul style="list-style-type: none">▪ Routine facility inspections – quarterly▪ Stormwater discharge inspections – quarterly<ul style="list-style-type: none">- Outfall location: northeast corner- Pollutant indicators |
| Reporting and Documentation | <ul style="list-style-type: none">▪ Routine facility inspection forms▪ Stormwater discharge inspection forms▪ SWPPP revisions |

*Fill in Employee Training Log/ sign-in sheet

B. Employee Training Logs

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description:	
Trainer:	
Employee(s) trained	Employee signature

C. Routine Facility Inspection Reports

Stormwater Routine Facility Inspection Form

General Information			
Facility Name			
Date of Inspection		Start/End Time	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Weather Information			
Weather at time of this inspection? <input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Fog <input type="checkbox"/> Snow <input type="checkbox"/> High Winds <input type="checkbox"/> Other: _____ Temperature: _____			
Have any previously unidentified discharges of pollutants occurred since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: _____			
Are there any discharges occurring at the time of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: _____			

Control Measures

- Number the structural stormwater control measures identified in your SWPPP on your site map and list them below (add as many control measures as are implemented on-site). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required control measures at your facility.

	Structural Control Measure	Control Measure is Operating Effectively?	If No, Check X if Applicable	Comments/ Corrective Action
1	Vehicle Storage Areas	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Signs of leakage/spills <input type="checkbox"/> Vehicles leaking, rusted, deteriorated	
2	Beet Juice Concentrate Tank	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Signs of leakage/spills <input type="checkbox"/> Tank damaged, rusted, deteriorated	
3	Salt Storage Piles	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Signs of leakage/spills <input type="checkbox"/> Accumulated material on outside pavement	
4	Other _____			

Additional SWPPP Documentation

Discharge Points

At discharge points, describe any evidence of, or the potential for, pollutants entering the drainage system. Also describe observations regarding the physical condition of and around all outfalls, including any flow dissipation devices, and evidence of pollutants in discharges and/or the receiving water. Identify if any corrective action is needed.

Notes

D. Quarterly Visual Assessment Guide

QUARTERLY VISUAL ASSESSMENT GUIDE

For Industrial Storm Water at Municipal Facilities

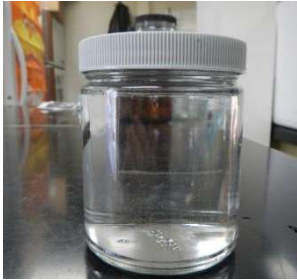
Read Before You Sample

1. Consult Site Map in SWPPP to identify outfall locations and ID numbers
2. Have one clean, clear glass or plastic jar per outfall. Use only glass if you expect oil & grease.
3. Label jars with outfall ID numbers
4. Carry a watch or cell phone so you can record the time and a clipboard and pen for writing
5. Ensure you have all gear necessary to collect samples safely (rain coat, sampling pole, etc.)
6. Complete one visual assessment form per sample
7. If you observe signs of pollution, note what is occurring within the drainage area to identify potential sources and opportunities to improve control measures
8. You are not required to keep samples once observation is documented, however you may wish to photograph the sample to include on reporting form
9. Consult the rain gauge on site to record the rainfall amount

When and Where to Sample

- The storm event or snowmelt sampled must create a discharge.
- The event sampled is to be preceded by 72 or more hours of dry weather (no discharge).
- Take sample within the first 30 minutes of discharge. If not feasible, document why.
- Sample storm water as it is discharging from your facility.
- Take one sample per outfall, unless you have substantially-identical outfalls. For substantially-identical outfalls, only sample one outfall amongst the group of substantially-identical outfalls, but rotate which outfall is sampled each quarter.
- Do not collect water in retention ponds or from the receiving stream. If the outlet is submerged or inaccessible, take sample from the first manhole upstream.

CLARITY



SOLIDS & FOAM



Floating Solids



Settled Solids



Suspended Solids



Foam

OIL SHEEN



E. Quarterly Visual Assessment Reports

Quarterly Visual Assessment Form

(Complete a separate form for each outfall you assess)

Name of Facility: Tiffin Parks and Recreation Facility

Outfall Location: Northeast corner of property where two vegetative ditches intersect.

Person(s)/Title(s) collecting sample:

Person(s)/Title(s) examining sample:

Date & Time Discharge Began:

Date & Time Sample Collected:

Date & Time Sample Examined:

Substitute Sample? ☐ No ☐ YesNature of Discharge: ☐ Rainfall ☐ Snowmelt

If rainfall: Rainfall Amount:

Previous Storm Ended > 72 hours ☐ Yes ☐ No* (explain):
Before Start of This Storm?**Pollutants Observed**Color ☐ None ☐ Other (describe): _____Odor ☐ None ☐ Musty ☐ Sewage ☐ Sulfur ☐ Sour ☐ Petroleum/Gas
☐ Solvents ☐ Other (describe): _____Clarity ☐ Clear ☐ Slightly Cloudy ☐ Cloudy ☐ Opaque ☐ OtherFloating Solids ☐ No ☐ Yes (describe): _____Settled Solids** ☐ No ☐ Yes (describe): _____Suspended Solids ☐ No ☐ Yes (describe): _____Foam (gently shake sample) ☐ No ☐ Yes (describe): _____Oil Sheen ☐ None ☐ Flecks ☐ Globs ☐ Sheen ☐ Slick
☐ Other (describe): _____Other Obvious Indicators ☐ No ☐ Yes (describe): _____
of Stormwater Pollution

* The 72-hour interval can be waived when the previous storm did not yield a measurable discharge or if you are able to document (attach applicable documentation) that less than a 72-hour interval is representative of local storm events during the sampling period.

** Observe for settled solids after allowing the sample to sit for approximately one-half hour.

Identify probably sources of any observed stormwater contamination. Also, include any additional comments, descriptions of pictures taken, and any corrective actions necessary below (attach additional sheets as necessary).

A. Name:

B. Title:

C. Signature:

D. Date Signed:

F. SWPPP Revision Log

Rev. No.	Description of the Revision	Date of Revision	Revision Prepared by [Name(s) and Title]

MCM #6 – POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Section 5 – Tiffin Public Works Maintenance Facility Spill Prevention Control & Countermeasure (SPCC) Plan



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In the event that your facility releases oil to navigable waters or adjoining shorelines, immediately call the National Response Center (NRC) at 1-800-424-8802. The NRC is the federal government's centralized reporting center, which is staffed 24 hours

Tier I Qualified Facility SPCC Plan

per day by U.S. Coast Guard personnel.

This template constitutes the SPCC Plan for the facility, when completed and signed by the owner or operator of a facility that meets the applicability criteria in §112.3(g)(1). This template addresses the requirements of 40 CFR part 112. Maintain a complete copy of the Plan at the facility if the facility is normally attended at least four hours per day, or for a facility attended fewer than four hours per day, at the nearest field office. When making operational changes at a facility that are necessary to comply with the rule requirements, the owner/operator should follow state and local requirements (such as for permitting, design and construction) and obtain professional assistance, as appropriate.

Facility Description

Facility Name Department of Public Works

Facility Address 630 Miami St.

City Tiffin State OH ZIP 44883

County Seneca Tel. Number (419) 448 - 5430

Owner or Operator Name Superintendent Mike Hoffman

Owner or Operator Address 630 Miami St.

City Tiffin State OH ZIP 44883

County Seneca Tel. Number (419) 448 - 5430

I. Self-Certification Statement (§112.6(a)(1))

The owner or operator of a facility certifies that each of the following is true in order to utilize this template to comply with the SPCC requirements:

- I Mike Hoffman certify that the following is accurate:
1. I am familiar with the applicable requirements of 40 CFR part 112;
 2. I have visited and examined the facility;
 3. This Plan was prepared in accordance with accepted and sound industry practices and standards;
 4. Procedures for required inspections and testing have been established in accordance with industry inspection and testing standards or recommended practices;
 5. I will fully implement the Plan;
 6. This facility meets the following qualification criteria (under §112.3(g)(1)):
 - a. The aggregate aboveground oil storage capacity of the facility is 10,000 U.S. gallons or less; and
 - b. The facility has had no single discharge as described in §112.1(b) exceeding 1,000 U.S. gallons and no two discharges as described in §112.1(b) each exceeding 42 U.S. gallons within any twelve month period in the three years prior to the SPCC Plan self-certification date, or since becoming subject to 40 CFR part 112 if the facility has been in operation for less than three years (not including oil discharges as described in §112.1(b) that are the result of natural disasters, acts of war, or terrorism); and
 - c. There is no individual oil storage container at the facility with an aboveground capacity greater than 5,000 U.S. gallons.
 7. This Plan does not deviate from any requirement of 40 CFR part 112 as allowed by §112.7(a)(2) (environmental equivalence) and §112.7(d) (impracticability of secondary containment) or include any measures pursuant to §112.9(c)(6) for produced water containers and any associated piping;
 8. This Plan and individual(s) responsible for implementing this Plan have the full approval of management and I have committed the necessary resources to fully implement this Plan.

III. Plan Requirements

1. Oil Storage Containers (§112.7(a)(3)(i)):

Table G-2 Oil Storage Containers and Capacities		
This table includes a complete list of all oil storage containers (aboveground containers ^a and completely buried tanks ^b) with capacity of 55 U.S. gallons or more, unless otherwise exempt from the rule. For mobile/portable containers, an estimated number of containers, types of oil, and anticipated capacities are provided.		<input checked="" type="checkbox"/>
Oil Storage Container (indicate whether aboveground (A) or completely buried (B))	Type of Oil	Shell Capacity (gallons)
Above ground	Unleaded gas	1000
Above ground	Diesel Fuel	1000
Above ground	Def Fluid	250
Above ground	Used motor oil	250
Above ground	Motor oil	110
Above ground	Hydraulic Oil	110
Above ground barrel	Hydraulic Oil	55 gal drum

Total Aboveground Storage Capacity ^c 2775 gallons
Total Completely Buried Storage Capacity _____ gallons
Facility Total Oil Storage Capacity 2775 gallons

^a Aboveground storage containers that must be included when calculating total facility oil storage capacity include: tanks and mobile or portable containers; oil-filled operational equipment (e.g. transformers); other oil-filled equipment, such as flow-through process equipment. Exempt containers that are not included in the capacity calculation include: any container with a storage capacity of less than 55 gallons of oil; containers used exclusively for wastewater treatment; permanently closed containers; motive power containers; hot-mix asphalt containers; heating oil containers used solely at a single-family residence; and pesticide application equipment or related mix containers.

^b Although the criteria to determine eligibility for qualified facilities focuses on the aboveground oil storage containers at the facility, the completely buried tanks at a qualified facility are still subject to the rule requirements and must be addressed in the template; however, they are not counted toward the qualified facility applicability threshold.

^c Counts toward qualified facility applicability threshold.

2. Secondary Containment and Oil Spill Control (§§112.6(a)(3)(i) and (ii), 112.7(c) and 112.9(c)(2)):

Table G-3 Secondary Containment and Oil Spill Control	
Appropriate secondary containment and/or diversionary structures or equipment ^a is provided for all oil handling containers, equipment, and transfer areas to prevent a discharge to navigable waters or adjoining shorelines. The entire secondary containment system, including walls and floor, is capable of containing oil and is constructed so that any discharge from a primary containment system, such as a tank or pipe, will not escape the containment system before cleanup occurs.	<input checked="" type="checkbox"/>

^a Use one of the following methods of secondary containment or its equivalent: (1) Dikes, berms, or retaining walls sufficiently impervious to contain oil; (2) Curbing; (3) Culverting, gutters, or other drainage systems; (4) Weirs, booms, or other barriers; (5) Spill diversion ponds; (6) Retention ponds; or (7) Sorbent materials.

I also understand my other obligations relating to the storage of oil at this facility, including, among others:

1. To report any oil discharge to navigable waters or adjoining shorelines to the appropriate authorities. Notification information is included in this Plan.
2. To review and amend this Plan whenever there is a material change at the facility that affects the potential for an oil discharge, and at least once every five years. Reviews and amendments are recorded in an attached log [See Five Year Review Log and Technical Amendment Log in Attachments 1.1 and 1.2.]
3. Optional use of a contingency plan. A contingency plan:
 - a. May be used in lieu of secondary containment for qualified oil-filled operational equipment, in accordance with the requirements under §112.7(k), and;
 - b. Must be prepared for flowlines and/or intra-facility gathering lines which do not have secondary containment at an oil production facility, and;
 - c. Must include an established and documented inspection or monitoring program; must follow the provisions of 40 CFR part 109; and must include a written commitment of manpower, equipment and materials to expeditiously remove any quantity of oil discharged that may be harmful. If applicable, a copy of the contingency plan and any additional documentation will be attached to this Plan as Attachment 2.

I certify that I have satisfied the requirement to prepare and implement a Plan under §112.3 and all of the requirements under §112.6(a). I certify that the information contained in this Plan is true.

Signature Mike Hoffman
 Name Mike Hoffman

Title: Superintendent
 Date: 1 / 31 / 2019

II. Record of Plan Review and Amendments

Five Year Review (§112.5(b)):

Complete a review and evaluation of this SPCC Plan at least once every five years. As a result of the review, amend this Plan within six months to include more effective prevention and control measures for the facility, if applicable. Implement any SPCC Plan amendment as soon as possible, but no later than six months following Plan amendment. Document completion of the review and evaluation, and complete the Five Year Review Log in Attachment 1.1. If the facility no longer meets Tier I qualified facility eligibility, the owner or operator must revise the Plan to meet Tier II qualified facility requirements, or complete a full PE certified Plan.

Table G-1 Technical Amendments (§§112.5(a), (c) and 112.6(a)(2))

This SPCC Plan will be amended when there is a change in the facility design, construction, operation, or maintenance that materially affects the potential for a discharge to navigable waters or adjoining shorelines. Examples include adding or removing containers, reconstruction, replacement, or installation of piping systems, changes to secondary containment systems, changes in product stored at this facility, or revisions to standard operating procedures.	<input checked="" type="checkbox"/>
Any technical amendments to this Plan will be re-certified in accordance with Section I of this Plan template. [§112.6(a)(2)] [See Technical Amendment Log in Attachment 1.2]	<input checked="" type="checkbox"/>

Table G-4 below identifies the tanks and containers at the facility with the potential for an oil discharge; the mode of failure; the flow direction and potential quantity of the discharge; and the secondary containment method and containment capacity that is provided.

Table G-4 Containers with Potential for an Oil Discharge					
Area	Type of failure (discharge scenario)	Potential discharge volume (gallons)	Direction of flow for uncontained discharge	Secondary containment method ^a	Secondary containment capacity (gallons)
Bulk Storage Containers and Mobile/Portable Containers^b					
Diesel and unleaded gas	Tank leak	none	self contained	Outer tank	entire tank
Def Fluid	Container leak	250	floor drains	Oil separator	entire tank
Used Motor Oil	Container leak	250	floor drains	Oil separator	entire tank
Hydraulic Oil	Container leak	110	floor drain	Oil separator	entire tank
Motor Oil	Container leak	110	floor drain	Oil separator	entire tank
Hydraulic Oil Drum	Container leak	55	floor drain	oil separator	entire barrel
Oil-filled Operational Equipment (e.g., hydraulic equipment, transformers)^c					
Piping, Valves, etc.					
Product Transfer Areas (location where oil is loaded to or from a container, pipe or other piece of equipment.)					
Other Oil-Handling Areas or Oil-Filled Equipment (e.g. flow-through process vessels at an oil production facility)					

^a Use one of the following methods of secondary containment or its equivalent: (1) Dikes, berms, or retaining walls sufficiently impervious to contain oil; (2) Curbing; (3) Culverting, gutters, or other drainage systems; (4) Weirs, booms, or other barriers; (5) Spill diversion ponds; (6) Retention ponds; or (7) Sorbent materials.

^b For storage tanks and bulk storage containers, the secondary containment capacity must be at least the capacity of the largest container plus additional capacity to contain rainfall or other precipitation.

^c For oil-filled operational equipment: Document in the table above if alternative measures to secondary containment (as described in §112.7(k)) are implemented at the facility.

Facility Name: Triffin City Public Works

3. Inspections, Testing, Recordkeeping and Personnel Training (§§112.7(e) and (f), 112.8(c)(6) and (d)(4), 112.9(c)(3), 112.12(c)(6) and (d)(4)):

Table G-5 Inspections, Testing, Recordkeeping and Personnel Training

An inspection and/or testing program is implemented for all aboveground bulk storage containers and piping at this facility. [§§112.8(c)(6) and (d)(4), 112.9(c)(3), 112.12(c)(6) and (d)(4)]	<input type="checkbox"/>
<p>The following is a description of the inspection and/or testing program (e.g. reference to industry standard utilized, scope, frequency, method of inspection or test, and person conducting the inspection) for all aboveground bulk storage containers and piping at this facility:</p> <p>The tanks are unable to be pressure tested, they are visibly inspected daily by designated employees. Inspections are logged quarterly as directed in the Storm Water Management Plan guidelines.</p>	
Inspections, tests, and records are conducted in accordance with written procedures developed for the facility. Records of inspections and tests kept under usual and customary business practices will suffice for purposes of this paragraph. [§112.7(e)]	<input checked="" type="checkbox"/>
A record of the inspections and tests are kept at the facility or with the SPCC Plan for a period of three years. [§112.7(e)] [See Inspection Log and Schedule in Attachment 3.1]	<input checked="" type="checkbox"/>
Inspections and tests are signed by the appropriate supervisor or inspector. [§112.7(e)]	<input checked="" type="checkbox"/>
Personnel, training, and discharge prevention procedures [§112.7(f)]	
Oil-handling personnel are trained in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and, the contents of the facility SPCC Plan. [§112.7(f)]	<input checked="" type="checkbox"/>
A person who reports to facility management is designated and accountable for discharge prevention. [§112.7(f)]	<input checked="" type="checkbox"/>
Name/Title: <u>Mike Hoffman Superintendent and Nick Webster Assistant Superintendent</u>	
Discharge prevention briefings are conducted for oil-handling personnel annually to assure adequate understanding of the SPCC Plan for that facility. Such briefings highlight and describe past reportable discharges or failures, malfunctioning components, and any recently developed precautionary measures. [§112.7(f)] [See Oil-handling Personnel Training and Briefing Log in Attachment 3.4]	<input checked="" type="checkbox"/>

4. Security (excluding oil production facilities) §112.7(g):**Table G-6 Implementation and Description of Security Measures**

Security measures are implemented at this facility to prevent unauthorized access to oil handling, processing, and storage area.	<input checked="" type="checkbox"/>
<p>The following is a description of how you secure and control access to the oil handling, processing and storage areas; secure master flow and drain valves; prevent unauthorized access to starter controls on oil pumps; secure out-of-service and loading/unloading connections of oil pipelines; address the appropriateness of security lighting to both prevent acts of vandalism and assist in the discovery of oil discharges:</p> <p>Tanks are kept behind a locked gate with minimal access by designated employees only with departmental issued key cards</p>	

5. Emergency Procedures and Notifications (§112.7(a)(3)(iv) and 112.7(a)(5)):**Table G-7 Description of Emergency Procedures and Notifications**

<p>The following is a description of the immediate actions to be taken by facility personnel in the event of a discharge to navigable waters or adjoining shorelines [§112.7(a)(3)(iv) and 112.7(a)(5)]:</p> <p>In the case of a spill the Tiffin Fire and Rescue, the Department of Natural Resources and the EPA will be notified immediately. Mats will be placed on all the nearby catch basins with oil booms and pads in the spill leak container. Oil dry and sand will be used where needed. Proper plugs will be placed in the storm lines where needed. Any effected area will be cleaned immediately and contaminated materials will be disposed of properly.</p>
--

6. Contact List (§112.7(a)(3)(vi)):

Table G-8 Contact List	
Contact Organization / Person	Telephone Number
National Response Center (NRC)	1-800-424-8802
Cleanup Contractor(s)	
Key Facility Personnel	
Designated Person Accountable for Discharge Prevention: Mike Hoffman Superintendent	Office: Public Works
	Emergency: 567-207-6436
	Office: 419-448-5430
	Emergency:
Nick Webster Assistant Superintendent	Office: 419-448-5430
	Emergency: 567-207-6438
	Office:
	Emergency:
State Oil Pollution Control Agencies	
Other State, Federal, and Local Agencies	
Local Fire Department Tiffin Fire and Rescue	911 or 419-448-5444
Local Police Department City of Tiffin Police Department	911 or 419-447-2323
Hospital Tiffin Mercy Hospital	419-455-7000
Other Contact References (e.g., downstream water intakes or neighboring facilities)	

7. NRC Notification Procedure (§112.7(a)(4) and (a)(5)):

Table G-9 NRC Notification Procedure	
In the event of a discharge of oil to navigable waters or adjoining shorelines, the following information identified in Attachment 4 will be provided to the National Response Center immediately following identification of a discharge to navigable waters or adjoining shorelines [See Discharge Notification Form in Attachment 4]: [§112.7(a)(4)]	<input checked="" type="checkbox"/>
<ul style="list-style-type: none"> The exact address or location and phone number of the facility; Date and time of the discharge; Type of material discharged; Estimate of the total quantity discharged; Estimate of the quantity discharged to navigable waters; Source of the discharge; 	<ul style="list-style-type: none"> Description of all affected media; Cause of the discharge; Any damages or injuries caused by the discharge; Actions being used to stop, remove, and mitigate the effects of the discharge; Whether an evacuation may be needed; and Names of individuals and/or organizations who have also been contacted.

8. SPCC Spill Reporting Requirements (Report within 60 days) (§112.4):

Submit information to the EPA Regional Administrator (RA) and the appropriate agency or agencies in charge of oil pollution control activities in the State in which the facility is located within 60 days from one of the following discharge events:

- A single discharge of more than 1,000 U.S. gallons of oil to navigable waters or adjoining shorelines or
- Two discharges to navigable waters or adjoining shorelines each more than 42 U.S. gallons of oil occurring within any twelve month period

You must submit the following information to the RA:

- (1) Name of the facility;
- (2) Your name;
- (3) Location of the facility;
- (4) Maximum storage or handling capacity of the facility and normal daily throughput;
- (5) Corrective action and countermeasures you have taken, including a description of equipment repairs and replacements;
- (6) An adequate description of the facility, including maps, flow diagrams, and topographical maps, as necessary;
- (7) The cause of the reportable discharge, including a failure analysis of the system or subsystem in which the failure occurred; and
- (8) Additional preventive measures you have taken or contemplated to minimize the possibility of recurrence
- (9) Such other information as the Regional Administrator may reasonably require pertinent to the Plan or discharge

* * * * *

**NOTE: Complete one of the following sections (A, B or C)
as appropriate for the facility type.**

Attachment A



Division of Surface Water
NPDES Small MS4 General Permit
(OHQ000002) Annual Reporting Form

Instructions for completing this form:

- OHQ000002 requires that this form be used when submitting annual reports. You may request approval to use your own reporting format.
- Annual Reports are due annually on or before April 1st.
- Complete the form and sign and date the certification statement below.
- If more space is needed than is provided, identify within the provided space that Attachment A, B, C, etc. has been attached.
- If an item of the form is not applicable for your program (such as street sweeping), fill in N/A in the space provided.
- Don't include attachments such as brochures, newspaper clips, sign-in sheets, etc. related to your program with this form. You only need to summarize these within this report. These records must be filed and will be needed during program audits.
- When complete, submit this Annual Report form to the following address:

Ohio Environmental Protection Agency
Division of Surface Water
Storm Water Program – Small MS4
P.O. Box 1049
Columbus, Ohio 43216-1049

Small MS4 Annual Report for Year:					
Ohio EPA Facility Permit Number:					
Name of MS4:					
Primary Contact:		Title:			
Mailing Address:					
City:		Zip Code:		County:	
Telephone Number:			Email Address:		

Include or attach a Table of Organization. Indicate who (name and contact information) is responsible for overall management and implementation of your program, and if different, each minimum control measure of your program. Identify how development and implementation across multiple positions, agencies and departments occur. Also, identify any Memorandum of Understandings (MOUs) or other such agreements that exist.

--

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including possibility of fine and imprisonment for knowing violations.

Print Name: _____

Print Title: _____

Signature: _____

Date: _____



SMALL MS4 ANNUAL REPORT FORM

PUBLIC EDUCATION & OUTREACH
Estimate Your Permit Area's Total Population: _____

BMP (mechanism) & Responsible Party		Measurable Goal	Theme or Message	Target Audience	% of Target Audience Reached	Summary of Results	Effective (Yes or No)



SMALL MS4 ANNUAL REPORT FORM

PUBLIC EDUCATION & OUTREACH

- Summarize activities you plan to undertake during the next reporting cycle.

BMP (mechanism) & Responsible Party		Measurable Goal	Theme or Message	Target Audience	% of Target Audience to be Reached	Summary of Planned Activities	Proposed Schedule



SMALL MS4 ANNUAL REPORT FORM

PUBLIC INVOLVEMENT/PARTICIPATION

BMP (Activity) & Responsible Party	Measurable Goal	Theme or Message	Target Audience	Estimate of People Participated	Summary of Results	Effective (Yes or No)



SMALL MS4 ANNUAL REPORT FORM

PUBLIC INVOLVEMENT/PARTICIPATION

- Summarize activities you plan to undertake during the next reporting cycle.

BMP (Activity) & Responsible Party		Measurable Goal	Theme or Message	Target Audience	Estimate of People to Participate	Summary of Planned Activities	Proposed Schedule



SMALL MS4 ANNUAL REPORT FORM

ILLICIT DISCHARGE DETECTION & ELIMINATION (IDDE)

BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Cite Local Code(s) Being Used (If available, web link for code(s))	Summary of Results or Activities	Effective (Yes or No)	
Ordinance or Other Regulatory Mechanism						
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Summary of Activities or Updates		Effective (Yes or No)	
Storm Sewer System Map						
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Summary of Activities or Updates		Effective (Yes or No)	
HSTS Mapping and List						
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Summary of Activities or Updates		Effective (Yes or No)	
IDDE Plan						
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	# of Outfalls Screened	# of Dry-Weather Flows Identified	# Of Illicit Discharges: Identified* Eliminated	Effective (Yes or No)
Dry-Weather Screening of Outfalls Total # of Outfalls _____						

*Include an attachment which provides schedules for elimination of illicit connections that have been identified but have yet to be eliminated.



SMALL MS4 ANNUAL REPORT FORM

ILLCIT DISCHARGE DETECTION & ELIMINATION (IDDE)

- Summarize activities you plan to undertake for the next reporting cycle.

BMP & Responsible Party		Measurable Goal	Summary of Planned Activities	Proposed Schedule
Ordinance or Other Regulatory Mechanism				
Storm Sewer System Map				
HSTS Mapping and List				
IDDE Plan				
Dry-Weather Screening of Outfalls				



SMALL MS4 ANNUAL REPORT FORM

CONSTRUCTION SITE RUNOFF CONTROL

BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Cite Local Code(s) Being Used (If available, web link for code(s))			Summary of Results or Activities	Effective (Yes or No)
Ordinance or Other Regulatory Mechanism							
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Standards Being Used			Summary of Results or Activities	Effective (Yes or No)
Sediment and Erosion Control Requirements							
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Complaints			Summary of Results or Activities	Effective (Yes or No)
Complaint Process			Received	Followed-Up On			
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	# of Applicable Sites Requiring Plans	# of Plans Reviewed		Summary of Results or Activities	Effective (Yes or No)
Site Plan Review Procedures							
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Site Inspections Performed			Summary of Results or Activities	Effective (Yes or No)
Site Inspection Procedures			# of Applicable Sites	# Performed	Avg. Frequency		
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Violations			Summary of Results or Activities	Effective (Yes or No)
Enforcement Procedures			# of Violation Letters	# of Enforcement Actions			

*Include an attachment which identifies applicable sites within your jurisdiction for this reporting period.



SMALL MS4 ANNUAL REPORT FORM

CONSTRUCTION SITE RUNOFF CONTROL

- Summarize activities you plan to undertake during the next reporting cycle.

BMP & Responsible Party		Measurable Goal	Summary of Planned Activities	Proposed Schedule
Ordinance or Other Regulatory Mechanism				
Sediment and Erosion Control Requirements				
Complaint Process				
Site Plan Review Procedures				
Site Inspection Procedures				
Enforcement Procedures				



SMALL MS4 ANNUAL REPORT FORM

POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Cite Local Code(s) Being Used (If available, web link for code(s))	Summary of Results or Activities	Effective (Yes or No)
Ordinance or Other Regulatory Mechanism					
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Structural and/or Non-Structural Standards Being Used	Summary of Results or Activities	Effective (Yes or No)
Post-Construction Requirements					
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	# of Applicable Sites Requiring Post-Const. BMPs	# of Plans Reviewed	Effective (Yes or No)
Site Plan Review Procedures					
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Site Inspections Performed		Effective (Yes or No)
			# Performed	Avg. Frequency	
Site Inspection Procedures					
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Violations		Effective (Yes or No)
			# of Violation Letters	# of Enforcement Actions	
Enforcement Procedures					
BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	# of Sites Requiring Plans/Agreements	# of Plans Developed/Agreements in Place	Effective (Yes or No)
Long-Term O&M Plans/Agreements					



SMALL MS4 ANNUAL REPORT FORM

POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

- Summarize activities you plan to undertake for the next reporting cycle.

BMP & Responsible Party		Measurable Goal	Summary of Planned Activities	Proposed Schedule
Ordinance or Other Regulatory Mechanism				
Post-Construction Requirements				
Site Plan Review Procedures				
Site Inspection Procedures				
Enforcement Procedures				
Long-Term O&M Plans/Agreements				



SMALL MS4 ANNUAL REPORT FORM

POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

BMP & Responsible Party	Measurable Goal	Completed (Yes or No)	Topic(s)	Targeted Audience	# of Employees Attended	Summary of Activity	Effective (Yes or No)
Employee Training Program							
List of Municipal Facilities Subject to Program							
				O&M Procedures Developed for Facilities (Yes or No)	# of Facility Inspections Performed	Frequencies of Such Inspections	
Summarize Maintenance Activities and Schedules							
MS4 Maintenance				Summarize Activities Performed			
Procedures Developed (Yes or No)							
Disposal of Wastes				Document Amounts of Wastes Properly Disposed			
Road Salt				Tons Used	Summarize Measures Taken to Minimize Usage		
Pesticide & Herbicide Usage				Gallons Used	Summarize Measures Taken to Minimize Usage		
Fertilizer Usage				Pounds Used	Summarize Measures Taken to Minimize Usage		
Street Sweeping				Document Amount of Material Collected and Properly Disposed			
Flood Management Projects				Summarize any New or Existing Flood Management Projects that were Assessed for Impacts on Water Quality			



SMALL MS4 ANNUAL REPORT FORM

POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

- Summarize activities you plan to undertake for the next reporting cycle.

BMP & Responsible Party		Measurable Goal	Summary of Planned Activities	Proposed Schedule
Employee Training Program				
List of Facilities Subject to Program				
MS4 Maintenance				
Disposal of Wastes				
Road Salt				
Pesticide & Herbicide Usage				
Fertilizer Usage				
Street Sweeping				
Flood Management Projects				



SMALL MS4 ANNUAL REPORT FORM

PROPOSED CHANGES TO YOUR SWMP (IF ANY)

- Summarize any proposed changes to your SWMP, including changes to any BMPs or any identified measurable goals that apply to the program elements. If you fail to satisfy measurable goals for the reporting year, please explain why.

VARIANCES GRANTED (IF ANY)

- Identify and summarize any variances granted under your storm water program.

